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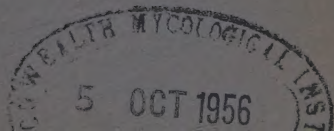
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THE VETERINARY BULLETIN

Vol. 26]

October, 1956

[No. 10

DISEASES CAUSED BY BACTERIA AND FUNGI

WORSECK, M. (1956). Ein Beitrag zur Bakteriologie der Staphylokokkenmastitis. [**Bacteriology of staphylococcal mastitis.**]—*Berl. Münch. tierärztl. Wschr.* **69**, 146-149. [English summary.] **3056**

W. described the cultural characters of 39 strains of staphylococci isolated from cases of mastitis. The characters studied included pigment production, haemolysis, liquefaction of gelatin, fermentation of mannite, coagulation of rabbit plasma, and production of dermatotoxin when inoculated intradermally into rabbits. Six strains were resistant to penicillin.

—E. G. WHITE.

NEWBOULD, F. H. S. & BARNUM, D. A. (1956). **Studies in sanitation in micrococcal mastitis. II. Factors affecting numbers of organisms on teat cups.**—*Canad. J. comp. Med.* **20**, 139-143. [French summary.] **3057**

Studies in farm herds revealed that micrococci on the lining of teat-cups that had been used on infected cows, originated from the external surface of the udder and teats. "Hibitane" provided best bacteriostatic action of all disinfectants studied, resulting in the lowest mean counts. It is believed that other disinfectants are quickly inactivated by organic matter present and that only a compound which is stable in the presence of organic matter forms a film over the udder surface and permits antibacterial influence.—R. V. L. WALKER.

BARNUM, D. A. & FULLER, D. S. (1956). **Bacteriophage typing of the staphylococci associated with bovine mastitis.**—*Canad. J. comp. Med.* **20**, 173-184. [French summary.] **3058**

Phage grouping was used to identify haemolytic staphylococci isolated from cases of mastitis and normal quarters, and the relationship of these groups to haemolysis, coagulase and pigment was determined. Of 591 strains studied, slightly over 81% could be classified

into 5 groups and the results indicated that an organism of one phage group produced the mastitis in each herd.—R. V. L. WALKER.

ROGERS, D. E. (1956). **Studies on bacteriemia. I. Mechanisms relating to the persistence of bacteriemia in rabbits following the intravenous injection of staphylococci.**—*J. exp. Med.* **103**, 713-742. [Abst. from author's summary.] **3059**

During the first 10-15 min. after i/v inj. there was rapid clearance of staphylococci from the bloodstream and rapid phagocytosis by polymorphonuclear leucocytes. Extra-cellular organisms were dealt with by the reticulo-endothelial system. Phagocytosed organisms remained viable and caused a low grade bacteraemia which persisted for many hours.

DOLMAN, C. E. (1956). **The staphylococcus: seven decades of research (1885-1955).**—*Canad. J. Microbiol.* **2**, 189-200. **3060**

A review of research on the *Staphylococcus* over a 70-year period is presented in historical perspective at intervals of a decade. It begins with the antiseptics of Lister and in order refers to phagocytosis, toxins and antitoxins, war wound sepsis and the subsequent sulphonamide and antibiotic era of to-day in which resistant strains are developing which appear to be the cause of an alarming increase in the prevalence of staphylococcal infections.

—R. V. L. WALKER.

SEELEMANN, M. & OBIGER, G. (1956). **CAMP-Test und TKT-Medium, ihre Bedeutung für Galt diagnose und Galt bekämpfung. [CAMP-test and the TKT medium in the diagnosis and control of bovine mastitis.]**—*Milchwissenschaft.* **11**, 98-103; 134-140. [English and French summaries.] **3061**

A study of 422 strains of mastitis streptococci confirmed that the typical CAMP reaction [*V.B.* **16**, 1015] is in general specific for Group B streptococci, although one or two

Group E and P strains produced a similar cup- or wedge-shaped area of haemolysis, whilst a number of strains in Groups A, C, F and O produced haemolytic zones which were more square-shaped. T.K.T. medium (thallium sulphate, crystal violet, β -staphylococcal toxin, blood agar) was of special value in detecting mastitis streptococci in bulk milk, the CAMP test being used to confirm the identity of doubtful organisms. Details of the preparation of the medium are given. The authors recommend the method for routine use in dairies to detect infected milk and to serve as a basis for the eradication of streptococcal mastitis.

—E. G. WHITE.

HALE, H. H., PLASTRIDGE, W. N. & WILLIAMS, L. F. (1956). **The effect of *Streptococcus agalactiae* infection on milk yield.** — *Cornell. Vet.* **46**, 201-206. [Abst. from authors' summary.] **3062**

There was a decrease of 10.2% in the milk yield of clean herds which became infected and an increase of 14.8% in those from which infection was eradicated.

SMITH, H. & GALLOP, R. C. (1956). **The chemical basis of the virulence of *Bacillus anthracis*. VI. An extracellular immunising aggressin isolated from exudates of infected guinea-pigs.** — *Brit. J. exp. Path.* **37**, 144-155. **3063**

A purified fraction having immunizing and anti-phagocytic properties was isolated from the thoracic and peritoneal exudates of g.pigs dying of anthrax. Its properties are described. Other fractions which were isolated are also discussed.—T.E.G.R.

BELTON, F. C. & HENDERSON, D. W. (1956). **A method for assaying anthrax immunising antigen and antibody.** — *Brit. J. exp. Path.* **37**, 156-160. **3064**

Sterile plasma from g. pigs which have died from anthrax produces a characteristic skin lesion in rabbits. This reaction can be completely neutralized by anthrax antiserum. This has formed the basis of the development of a skin test for the titration of *in vitro*-produced anthrax antigen (which is non-toxic) and of anthrax antiserum. It is possible to detect twofold differences in potency of either antigen or antibody.

I. GREGORY, T. S. (1955). **Progress in the control and eradication of bovine tuberculosis in Australia.** — *Aust. vet. J.* **31**, 276-278. **3065**

II. GOLDING, N. K. (1955). **Progress in New South Wales.** — *Ibid.* 279-282. **3066**

III. WEBSTER, W. (1955). **Progress in Queensland.** — *Ibid.* 282-285. **3067**

IV. CHAMBERLAIN, H. V. (1955). **Progress in South Australia.** — *Ibid.* 285-288. **3068**

V. MELDRUM, G. K. (1955). **Progress in Tasmania.** — *Ibid.* 288-289. **3069**

VI. GRAYSON, A. R. (1955). **Progress in Victoria.** — *Ibid.* 290-291. **3070**

VII. TOOP, C. R. (1955). **Progress in Western Australia.** — *Ibid.* 291-293. **3071**

I—VII. The deficiencies in bovine TB. eradication programmes in Australia are discussed and the progress made in the various states reported. An increase in the use of veterinarians in rural practice is recommended to increase the rate of eradication. More complete examination of all abattoir-killed meat is also recommended. Little attempt has been made to control the disease in beef cattle, and the numbers of dairy cattle in eradication programmes vary considerably from state to state.—D. C. BLOOD.

REUSS, U. (1956). **Leistungsfähigkeit und Grenzen der bakteriologischen Untersuchung von Trachealschleimproben von Rindern auf Tuberkelbakterien. [Reliability and limitations of bacteriological examination of tracheal mucus for tubercle bacilli in cattle.]** — *Rindertuberkulose.* **5**, 97-102. **3072**

A total of 249 samples of tracheal mucus were examined for tubercle bacilli by stained films, culture, and g. pig inoculation. Tubercle bacilli were demonstrated in films in 24, by culture in 19, and by animal inoculation in 98 samples, 74 of which were positive by this method alone. Since the organism is excreted intermittently in the mucus it may be necessary to examine several samples at intervals.

—E. G. WHITE.

TYMNIAK, M. (1956). **Odczyn nieswoiste przy śródskórnej tuberkulinizacji bydła. [Non-specific reactions to the intradermal tuberculin test in cattle.]** — *Méd. vét., Varsovie.* **12**, 269-270. [In Polish.] **3073**

T. discusses the various types of non-specific reactions with special emphasis on so-called "skin tuberculosis."—M. GITTER.

SOBIECH, T. & LIPANOWICZ, J. (1955). **Biały obraz krwi przy śródskórnej tuberkulinizacji u bydła. [Leucocyte picture in cattle during the intradermal tuberculin test.]** — *Weterynaria, Wrocław.* **1**, 7-28. [In Polish. English and Russian summaries.] **3074**

A single i/d injection of Koch's Old Tuberculin was given to each of 105 cattle, 1-14 years old, and after 72 hours 47 gave a positive reaction, 55 negative and 3 doubtful. No appreciable differences in leucocyte counts were found in blood examined before the injection, but as a result of the test the positive reactors had lymphocytosis and decreased numbers of eosinophiles and monocytes, while in the non-reactors increased numbers of neutrophils and decreased numbers of lymphocytes and eosinophiles were noted. In the author's opinion diminution in eosinophile numbers seems to be directly connected with the introduction of tuberculin, irrespective of the animal's reaction to the test.—M. GITTER.

SCHULZ, F. (1955). Vergleiche über die Häufigkeit der Reaktionstuberkulose der Kinder mit dem Verbreitungsgrad der Rindertuberkulose in bäuerlichen Betrieben im Landkreis Bamberg. [The relationship between positive tuberculin tests in children and the distribution of TB. in cattle in the Bamberg district, Germany.]—*Inaug. Diss., Munich*. pp. 68. 3075

Investigations involved 290 herds of cattle and 562 children living on farm premises. The incidence of tuberculin reactors amongst children on severely affected farms was considerably higher than on farms free from bovine TB.

—M.G.G.

MCDIARMID, A. (1956). Tuberculin testing in pigs.—*Vet. Rec.* 68, 298-299. 3076

The author reports on the methods used and the results obtained in the tuberculin testing of pigs at the Compton Field Station. A single injection of P.P.D. tuberculin (Weybridge) is made into the tissue at the base of the ear and the result is read at 48 hours. Any degree of visible reaction is regarded as positive.

—D. LUKE.

PALLASKE, G. (1955). Beitrag zur pathologischen Anatomie und zum Verlauf der Tuberkulose des Schafes. [Pathological anatomy and the course of TB. in sheep.]—*Arch. exp. VetMed.* 9, 354-365. 3077

P. described 3 types of pulmonary TB. in sheep. The most common took the form of caseous, calcified, capsulated nodules in the lungs. It occurred in chronic generalized infection and was often unaccompanied by symptoms. The second type was characterized by productive, infiltrative lesions commencing in the lung lobules, and clinically by emaciation, nasal discharge and laboured breathing. The third type was an acute process leading to lobar

caseating pneumonia with the formation of cavities. This type was important in meat inspection because of the possibility of blood infection and sub-macoscopic miliary lesions in other organs.—R.M.

DAVENAS, P. & DABRIGEON, J. (1955). La tuberculose de la chèvre à Saint-Étienne. [TB. in goats in France.]—*Rec. Méd. vet.* 131, 772-777. 3078

The incidence of TB. in slaughter goats rose from 0.27% in 1949, to 1.7% in 1954. Lesions were most commonly found in the lungs and associated lymph nodes, followed by the liver and spleen in order of frequency. It is believed that the infection is of bovine origin through contact and ingestion of milk.—T.E.G.R.

FRANCIS, J. (1956). Tuberculosis in the dog, with special reference to experimental bronchogenic tuberculosis.—*Amer. Rev. Tuberc.* 73, 748-763. [French and Spanish summaries. Abst. from author's summary.] 3079

Dogs were susceptible to both the human and the bovine strains of *Mycobact. tuberculosis* injected intravenously, but were more resistant than rabbits, g. pigs and calves. On a body weight basis they were as susceptible as mice to large doses but more resistant to smaller doses. Nutrition did not influence the course of infection; allergy was low and irregular. Resistance is attributed to: low toxicity of the mycobacterium for dog's tissues; destruction of the organisms by macrophages; encapsulation of the lesions. The course of infection by the intratracheal route was the same with both the human and the bovine strains. The lung lesions were characterized by central necrosis, caseation and cavity formation. Calcification was rare, but fibrous tissue was often exuberant, leading to encapsulation and, eventually, to scar formation. Histological changes were common in the liver and they also occurred in the kidneys.

LACK, C. H. (1956). Chronic tuberculous infection in experimental animals.—*Amer. Rev. Tuberc.* 73, 378-389. [French and Spanish summaries. Author's summary slightly modified.] 3080

Differences in host response after i/d inoculation of *M. tuberculosis* (H37Rv) into g. pigs, mice and rabbits are described. The tubercle bacilli may survive for more than a year in chronic lesions in the lungs of rabbits. The use of this experimental method for studying factors affecting the stability of chronic infections is suggested, and observations on the adverse effect of cortisone are presented as an example.

GÖZSY, B. & KÁTÓ, L. (1956). Effects of phagocytic stimulation on experimental tuberculosis of guinea pigs.—*Amer. Rev. Tuberc.* **73**, 442-443. **3081**

Thirty-three volatile oils were tested for their effect on TB. in g. pigs. Treatment was begun 21 days after infection and lasted for 8 weeks. The animals were injected daily with 5 or 2.5 mg. of dihydrostreptomycin and once weekly with 10 mg. of volatile oil. P.M. examination revealed that linalool, citronellol, ginger oil, juniper oil and pine needle oil increased the efficacy of small doses of dihydrostreptomycin.

—M.G.G.

SCHIMPL, M. (1955). Untersuchungen zur Frage der Spezifität der Tuberkulinkehllappenprobe bei Hühnern. [Specificity of the wattle tuberculin test in fowls.]—*Inaug. Diss. Munich*. pp. 32. **3082**

The allergic wattle test was carried out on 48 fowls with a view to determining the relative specificity of concentrated and diluted (1:2, 1:4) tuberculin. Undiluted tuberculin caused a more severe response and permitted a greater number of tuberculous birds to be identified.

—W. G. SILLER.

ANON. (1956). New TB vaccine.—*Science*. **123**, 411. **3083**

A vaccine prepared from *Mycobact. tuberculosis* ground in a sugar solution with powdered glass for 18 hours engendered the same immunity as B.C.G. in mice.—T.E.G.R.

GROSSO, E. (1955). Saggi comparativi di vaccinazione antitubercolare della cavia con *Mycobacterium tuberculosis* var. *muris* e con B. C. G. [*Mycobacterium tuberculosis* var. *muris* and B. C. G. for vaccination of g. pigs against TB.]—*Boll. Ist. sieroter. Milano*. **34**, 712-720. [English summary.] **3084**

In a comparative study of the immunizing properties of *M. tuberculosis* var. *muris* and B.C.G. it was observed that the former, injected s/c or i/d, caused lesions in g. pigs.—T.E.G.R.

HOLZ, W. (1955). Neue Untersuchungsverfahren zur Prüfung von Desinfektionsmitteln auf Bakterizidie unter besonderer Berücksichtigung der Flächendesinfektion bei Tuberculose. [New methods of testing the bactericidal action of disinfectants with special reference to surface disinfection in TB.]—*Zbl. Bakt. I (Orig.)* **162**, 452-474. **3085**

H. discussed the requirements of a method for testing the disinfection of surfaces, with particular regard to *Mycobact. tuberculosis*, and described in detail a suitable method. He gave

examples but did not name the disinfectants used, except for formaldehyde, which was used as a standard for comparison.—R.M.

MILLER, I. L. & ROESSLER, W. G. (1956). Growth of *Mycobacterium tuberculosis* in liquid media.—*Amer. Rev. Tuberc.* **73**, 716-725. [French and Spanish summaries. Abst. from authors' summary.] **3086**

Agitation of liquid cultures of *M. tuberculosis* produced better and faster growth with a shorter generation time. Comparative generation times for two strains in a Tween medium, with and without serum-albumin, shaken and stationary, are given.

FENNER, F. (1956). The pathogenic behavior of *Mycobacterium ulcerans* and *Mycobacterium balnei* in the mouse and developing chick embryo.—*Amer. Rev. Tuberc.* **73**, 650-673. [French and Spanish summaries. Abst. from author's summary.] **3087**

M. balnei and *M. ulcerans* were pathogenic for mice and for chick embryos. In the former, foot lesions developed after plantar inoculation; no visceral lesions developed after intranasal instillation, i/p or i/v inj., but ulceration of the hairless part of the body and of the scrotum occurred. In chick embryos after i/v inj. and incubation at 33°C. there was multiplication in the liver and, in the case of *M. balnei*, death in 3-5 days. There was no growth at 37°C. It is considered that the pathogenicity of the two organisms and their growth on culture media are influenced by environmental temperature.

LAWRENCE, W. E. (1956). Congenital infection with *Mycobacterium johnei* in cattle.—*Vet. Rec.* **68**, 312-314. [Abst. from author's summary.] **3088**

Organisms resembling *M. johnei* were isolated from 5 fetuses taken from slaughter cows (of which 19 were known clinical cases or came from infected herds). Of the infected fetuses 4 were from cows with intestinal lesions of Johne's disease and the fifth from a cow with no clinical or P.M. evidence of the disease. Organisms resembling *M. johnei* were also isolated from 2 non-pregnant uteri and from an ovary of clinically affected cows and from the testicles of an infected bull.

NGUYEN-BA-LUONG. (1956). A propos d'une épidémie porcine de mélioidose dans une province méridionale du Vietnam. [An outbreak of melioidosis in pigs in Vietnam.]—*Bull. Soc. Pat. exot.* **49**, 25-31. **3089**

After reviewing the literature on melioidosis in animals, N. reported an outbreak in a herd

of 120 pigs, of which 2 died. *Pfeifferella whitmori* was isolated from abscesses in the spleen, lungs, mediastinal and mesenteric lymph nodes. Serological examination of 50 pigs revealed agglutination titres of up to 1:80. However 13 of the animals were negative.

—M.G.G.

DEDIÉ, K. (1955). Beitrag zur Epizootologie der Listeriose. [Epizootiology of *Listeria infection*.]—*Arch. exp. VetMed.* **9**, 251-264. **3090**

D. studied experimental *Erysipelothrix (Listeria) monocytogenes* infection in fowls and a sheep inoculated i/v with cultures and in a cow infected by inoculation into the teat canal: mastitis developed in the inoculated quarter, but cultural and serological examination of blood was negative. The agglutination test, using H and O antigens, was carried out in these animals and in an infected herd of cattle and a flock of sheep. The test was regarded as positive if the H antigen titre was 1:160 and the O antigen titre was 1:80. The highest titres encountered were 1:640-1:1,280 for H antigen and 1:80-1:320 for O antigen. Fatal septicaemia ensued when mice were exposed to the organism in aerosol form. The disease spread rapidly among fowls in contact with infected fowls.—R.M.

HARTWIGK, H. & GRUND, S. (1956). Elektronenmikroskopische Untersuchungen an *Listeria monocytogenes*. [Study of *E. monocytogenes* by electron microscopy.]—*Zbl. VetMed.* **3**, 232-238. [English, French and Spanish summaries. Abst. from English summary.] **3091**

Electron microscopy of *Erysipelothrix (Listeria) monocytogenes* revealed as many as 4 peritrichate flagella, the arrangement of which was not clear though they were not polar. The flagella contain loops of individual fibres which, on fusion, produce the mature form; the latter type predominated and straight flagella were rare. The basic flagella are considered to be spiral.

EASTERBROOKS, H. L. & PLASTRIDGE, W. N. (1956). Acute *Klebsiella* (capsulated coliform) mastitis. — *J. Amer. vet. med. Ass.* **128**, 502-506. [Abst. from authors' summary.] **3092**

It is considered that the capsulated coliform organism causing acute mastitis in cows is a *Klebsiella*, of which there are several serological types. An account is given of cases of natural and of experimental infection. Treatment with sulphadimidine and streptomycin, singly or in combination, gave good results.

FEY, H. (1955). Serologische, biochemische und biologische Untersuchungen an Stämmen aus boviner Colimastitis mit spezieller Berücksichtigung der Coli-Säuglingsenteritis. [Research on *Klebsiella* and *Bact. coli* strains isolated from cows with mastitis, and their relation to enteritis in infants.]—*Ergebn. Hyg. Bakt.* **29**, 394-474. **3093**

F. discussed the pathogenesis and clinical forms of *Bact. coli* mastitis in cattle. Out of 136 strains isolated from such cases 113 were *Bact. coli*, 20 were *Klebsiella*, 1 was *Proteus morgani* and 2 were unclassified. 85 of the *Bact. coli* strains were allocated to 36 O-groups; many of them (43) belonged to O-group numbers (in order of frequency) 9, 8, 6, 86, 81, 2 and 21. The O-group distribution of 1,800 strains from bovine faeces was very similar. K antigens were identified in all the strains from bovine mastitis, but L antigen was found in only one. 16.9% of the mastitis strains were haemolytic and 30% caused necrosis in lab. animals. It was suggested that the latter types were responsible for necrotic mastitis in cattle. All mastitis strains were resistant to penicillin and susceptible to sulphathiazole, sulphadimidine, streptomycin, and the tetracyclines *in vitro*.

Types of *Bact. coli* responsible for enteritis in babies in Switzerland were 26:B6:—, 55:B5:8, and 111:B4:2. The same types were found in a wide variety of material from animals. F. reported an instance of the transmission of type 26:B6 from a cow with mastitis to 4 members of a peasant family. He discussed the role of cattle as a reservoir of *Bact. coli* for children.—R.M.

WISEMAN, R. F. & SARLES, W. B. (1956). A plating technique for screening intestinal coliform bacteria.—*J. Bact.* **71**, 480-481. [Authors' summary slightly modified.] **3094**

A rapid replica plating procedure is described for the identification and enumeration of coliform bacteria from the intestinal contents of fowls which have been maintained on an antibiotic-supplemented ration.

PIROTTA, F. (1955). Relazioni tra batteriofagi e colicine. [Relationship between bacteriophage and substances having a bactericidal action on *Bact. coli*.]—*Boll. Ist. sieroter. Milano.* **34**, 552-563. [English summary.] **3095**

An account of a comparative study of bacteriophages and antibiotics with reference to the organisms producing them and the mech-

anism of their production, and their action on sensitive organisms.—T.E.G.R.

DI BELLA, A., ZULIANI, F. & MASONI, S. (1955). Particolare comportamento del *B. coli* e del suo filtrato nei riguardi dell'azione antibatterica della tirotricina. [The behaviour of *Bact. coli* and its filtrate in regard to the antibacterial action of tyrothricin.]—*Boll. Ist. sieroter. Milano*. **34**, 598-602. [English summary.] **3096**

Bact. coli, *S. typhi*, *S. paratyphi B* and *Shigella flexneri* were resistant to tyrothricin *in vitro*. It is considered that this resistance is due to metabolic products of the organism and the filtrate of a 24-hour culture can completely inhibit the action of the antibiotic.—T.E.G.R.

SCHREIER, K. & RUTHE, E. (1955). Einige Untersuchungen zum Aminosäurenstoffwechsel pathogener und nichtpathogener Colistämme. [Amino-acid metabolism of pathogenic and non-pathogenic strains of *Bact. coli*.]—*Zbl. Bakt. I (Orig.)* **163**, 154-165. [English, French and Russian summaries.] **3097**

There was very little difference between the amino-acid composition of non-pathogenic and pathogenic (Types O55 B5 and O111 B4) strains of *Bact. coli*, except that the isoleucine content of the O111 type was higher than that of other strains. The synthesis of amino-acids by the non-pathogenic strains was studied. The addition of 17 amino-acids to a basic medium inhibited the growth of non-pathogenic strains but facilitated that of pathogenic strains. The authors suggested that pathogenic strains required a source of carbon in addition to glucose.—R.M.

RASCH, K. & RICHTER, J. (1956). Endemologisches um einen bovinen Dauerausscheider von *Salmonella heidelberg*. [*S. heidelberg* infection in cattle.]—*Berl. Münch. tierärztl. Wschr.* **69**, 211-214. [English summary.] **3098**

S. heidelberg was isolated from the organs of a cow sent for emergency slaughter and later from all 6 inhabitants of the farm from which the cow was received, from 12 of the 29 cattle in the herd, and from water on the pasture and in an adjacent stream. One of the infected cows was continuously excreting the organism: its slaughter and subsequent hygienic measures removed the infection within 3 months. The original source of infection is believed to have been fish meal.—E. G. WHITE.

ROOK, A. (1956). Puo' la *Salmonella abortus ovis* causare l'aborto anche nella donna? [*Salmonella abortus-ovis*—a possible source of human abortion?].—*Zooprofilassi*. **11**, 167-168. **3099**

Of 115 samples of human serum 9 (from cases of abortion) gave positive agglutination reactions with a *S. abortus-ovis* antigen at a titre of 1:160-1:320.—T.E.G.R.

IYER, P. R. K. & UPPAL, D. R. (1956). Salmonellosis in rabbits. A comparison with rinderpest.—*Indian vet. J.* **32**, 430-438. **3100**

In an outbreak of salmonella infection, lesions identical with those produced by lapinized rinderpest virus were seen in the Peyer's patches. In the former case, however, there is usually enlargement of the spleen, heart blood cultures reveal the organism, and there are histopathological differences.—R. G. MARES.

SCHWICHTENBERG, N. (1955). Zum Vorkommen von Salmonellakeimen bei Hühnern. [Occurrence of various types of salmonella in fowls.]—*Inaug. Diss., Munich*. pp.23. **3101**

Fifty-eight strains of *S. gallinarum*, 36 strains of *S. pullorum* and 8 strains of *S. typhimurium* were isolated from 120 fowls showing macroscopic changes of pullorum disease. Carriers of *S. typhimurium* are of importance from the point of view of food hygiene.

—W. G. SILLER.

GAUGUSCH, Z. & MALWIŃSKA, K. (1956). Badania bakteriologiczne naturalnych i sztucznych środowisk wodnych, przy salmonelozie ptactwa wodnego. [Bacteriology of water reservoirs and ponds in relation to salmonella infection of aquatic birds.]—*Méd. vét., Varsovie*. **12**, 276-280. [In Polish. English and Russian summaries.] **3102**

The water and slime on the bottom of natural and artificial ponds can become a reservoir of *S. typhimurium*. Fish living in infected water also become infected and the organism can be isolated from their internal organs and muscles. In the authors' opinion an infected water reservoir might become a factor in salmonella infection of aquatic birds.—M. GITTER.

CAMERON, H. S. & KENDRICK, J. W. (1956). The diagnosis of brucellosis of the mammary gland by a serologic milk test. Preliminary report.—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 138-141. **3103**

Of 161 cattle excreting *Brucella abortus* in the milk, 135 were positive to the blood test and 159 to a plate agglutination test with whey. A herd of cows which was vaccinated became

negative to the whey test after 9 weeks while remaining positive to the blood test. It is considered that the whey test will distinguish between infected and vaccinated animals.

—M.G.G.

WIŚNIEWSKI, J. (1956). Kilka uwag technicznych o odczynie wiązania dopełniacza przy brucellozie. [Technical notes on the complement-fixation test in brucellosis.]—*Méd. vét., Varsovie*. 12, 260-269. [In Polish.] 3104

A detailed description of the technique generally employed is given. A solution of glucose 2.05 g., sodium citrate 0.8 g., sodium chloride 0.42 g., in distilled water 100 ml. was found very useful for the preservation of r.b.c. The g. pig serum used as complement is tested for the presence of brucella agglutinins; after a plate test the sera are pooled, divided into 1.2-ml. lots and freeze-dried. In this state the complement can be stored for several months provided that it is protected from light. The use of stained antigen was of value especially when large numbers of samples had to be examined.

—M. GITTER.

SCHAAL, E. (1956). Über Coombs-Test und inkomplette Antikörper bei Abortus Bang der Rinder und ihre Bedeutung für die serologische Diagnostik. [Importance for serological diagnosis of Coombs' test and incomplete antibodies in *Br. abortus* infection in cattle.]—*Dtsch. tierärztl. Wschr.* 63, 145-147. 3105

The Coombs test did not reveal the existence of incomplete antibody in samples of serum and whey from cattle with brucellosis. In three-quarters and one half of the samples of serum and whey, respectively, the test gave a higher antibody titre than did the ordinary tube agglutination test, a result which is attributed to the ability of the Coombs test to detect minute traces of complete antibody. The technical difficulties of the test in its present form make it unsuitable for routine use. The zone phenomenon was seen in 27 of 90 positive sera, being incomplete in 22 and complete in 5. It is attributed to an excess of complete agglutinin.

—E. G. WHITE.

WILBUR, J. L. JR. (1956). Brucellosis eradication under range conditions.—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 125-137. 3106

The progress of the brucellosis eradication campaign in Montana was described. The present incidence of positive reactors is 1%, as against 4% in 1952. The campaign has been conducted on the following basis: (1) Limita-

tion of the breeding season to 60 days, (2) Culling of dry cows in the autumn, (3) Testing of breeding cattle in the autumn or approx. 4 months after calving, disposal of reactors with a titre of 1:50, and retesting at least once, (4) Vaccination of heifer calves.—M.G.G.

I. FRAHM, H. & LEMBKE, A. (1955). Die Immunisierung des Rindes gegen Brucellose mit abgetötetem *Brucella abortus*-Impfstoff. [Immunization of cattle against brucellosis with killed *Br. abortus* vaccine.]—*Zbl. Bakt. I. (Orig.)* 162, 49-67. 3107

II. FRAHM, H. & LEMBKE, A. (1955). Die Immunisierung des Rindes gegen Brucellose. II. Weitere Erfahrungen mit dem Adsorbat-Impfstoff aus abgetöteten Brucellose-Erregern im Vergleich zur Impfung mit lebenden Kulturen. [Immunization of cattle against brucellosis. II. Further experience with adsorbate killed vaccine compared with the inoculation of living cultures.]—*Ibid.* 164, 481-492. [English, French and Russian summaries.] 3108

I. A vaccine was prepared from acetone-killed *Br. abortus* adsorbed on aluminium hydroxide. Following successful tests in mice it was injected into about 500 cattle on infected farms. Two injections were given, with an interval of 4 weeks between them. Vaccination was assessed as successful solely on the basis of absence of abortion, absence of brucella from the placenta, and an increase in the gamma-globulin in the blood. Challenge experiments were not performed in cattle.

II. A total of 1,500 cattle were inoculated with killed vaccine. On 3 farms other cows were inoculated with Strain 19. The killed vaccine was said to be of value because the agglutination titres of whey from cows inoculated with it were lower than those of cows inoculated with Strain 19. Exact figures for the incidence of abortion in each group were not given. There were no exact data on the duration of immunity.

—R.M.

BOSIO, G. (1956). Azione della "Strecillina 100 Leo" nella infezione brucellare bovina e nella terapia di alcune lesioni dell'utero causata da sterilità. [The treatment of brucellosis and of certain sterility-producing lesions resulting therefrom in cattle with a compound of sodium penicillin G and dihydrostreptomycin sulphate.]—*Progr. vet., Torino*. 11, 264, 266-268 & 270. [French summary.] 3109

A combination of sodium penicillin G and dihydrostreptomycin sulphate, usually in a daily dosage of 2 mega-units of the former and 2 g.

of the latter, for 5 days, was used in 8 cows with purulent endometritis due to *Br. abortus*. A clinical cure was claimed for all the animals.

—G. P. MARSHALL.

SACKMANN, W. (1956). Über penicillinempfindliche Brucellastämme. [**Strains of *Brucella* sensitive to penicillin.**]—*Zbl. VetMed.* **3**, 207-218. [English, French and Spanish summaries. Abst. from English summary.] **3110**

Strains of *Br. abortus* sensitive to penicillin were studied on a penicillin-free medium. They were similar to Strain 19 in their CO₂ requirements, thionin and thionin blue sensitivity and catalase activity, but were more virulent for g. pigs. They are considered as mutants of Strain 19 rather than organisms with increased virulence through passage in animals. Wide variations existed in the sensitivity of *Brucella* (especially *Br. abortus*) to penicillin. It is concluded that *Br. abortus* cannot be identified solely by its CO₂ requirements and, in the case of Strain 19, the usual *in vitro* tests are insufficient.

THOMSEN, A. (1956). Brucella-infectie bij varkens in verband met brucellose bij hazen. [**Brucella infection in pigs in relation to brucellosis in hares.**]—*Vlaam. diergeneesk. Tijdschr.* **25**, 87-102. [In Flemish, English, French and German summaries.] **3111**

Br. suis infection has been found in hares in areas of Denmark where outbreaks of brucellosis in pigs have occurred. Brucellosis developed in pigs which were fed the organs of infected hares. It is suggested that past outbreaks in Denmark have been caused in this way.—M.G.G.

MORÁN, B. L. & MAUBECIN, R. A. (1955). La prueba del anillo (ABR) en brucelosis caprina. [**The ring test for brucellosis in goats.**]—*Rev. Med. vet., B. Aires.* **37**, 51-56 & 59-67. **3112**

The reaction was not constant but included variations such as: a coloured ring below the cream level, or at the bottom of the tube; discoloration of the milk and the appearance of clots of various sizes suspended in the milk. These abnormal reactions occurred in direct proportion to positive serological reactions and are, therefore, regarded as positive. It is considered that the ring test can be complementary to serum agglutination for bulk tests in epidemiological surveys.—T.E.G.R.

RENOUX, G. & ALTON, G. (1955). Etudes sur la brucellose ovine et caprine. IV. Réactions sérologiques dans le sang et le lait de chèvre

récemment infectées par *Br. melitensis*. [**Studies on ovine and caprine brucellosis. IV. Serological tests with milk and blood from recently infected goats.**]—*Arch. Inst. Pasture Tunis.* **32**, 523-550. [For parts V and VI see *V.B.* **26**, 2536 & 2537.] **3113**

Serological and cultural tests were carried out on 123 goats for 30-50 days after conjunctival instillation of a suspension of *Br. melitensis*. It was found that an agglutination titre of 1:80 is positive for brucellosis in goats. A negative reaction does not mean that an animal is free from brucellosis. The surface fixation test is positive at a titre of 1:160. The presence of blocking antibodies is specific; they do not occur in healthy goats. The whey agglutination test is very specific, but not sufficiently sensitive for practical purposes. The stained antigen test with the milk is specific and highly sensitive. It was concluded that serological tests are of value in herd diagnosis, and that the stained antigen test can be used in conjunction with other tests for the diagnosis of brucellosis in individual goats.—M.G.G.

FERGUSON, L. C., BOHL, E. H. & POWERS, T. E. (1956). **Leptospirosis in swine.**—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 332-336. **3114**

The authors discussed the problem of the control of *L. pomona* infection in pigs, and in particular the prevention or eradication of the renal carrier state by (1) immunization, (2) mass chemotherapeutic or antibiotic treatment of infected herds, (3) the maintenance of clean herds by introducing only serologically negative pigs. The results so far obtained in controlled experiments with killed-culture vaccines are insufficient for their value to be assessed. Streptomycin, the only substance known to be effective in eliminating the carrier state, is too expensive for use except in valuable breeding animals. A main difficulty in evaluating the results of therapeutic trials is the irregularity of appearance of viable leptospira in the urine. Even if the pH of the urine is modified by a change in diet to allow survival of the organism, absence of the latter from the urine does not necessarily prove that the animal is cured. A proprietary compound, "Furadantin," had little or no activity against leptospira in the kidneys in g. pigs and hamsters.—F.E.W.

SEILER, H. E., NORVAL, J. & COGHAN, J. D. (1956). **Leptospirosis in piggery workers.**—*Nature, Lond.* **177**, 1042. **3115**

Four cases of *Leptospira canicola* infection in piggery workers in Edinburgh were reported.

Blood samples from 76 pigs revealed antibodies to *L. canicola* in 46 animals. A high antibody content to *L. canicola* was revealed in the blood of 19 out of 47 workers in 12 piggeries.—M.G.G.

BAJOCCHI, E., BUSSINELLO, E. & SALVI, A. (1955). Osservazione sperimentali in corso di infezione attenuata, nella cavia mediante *Leptospira australis* B (ceppo Zanoni). [Experimental *Leptospira australis* B infection in g. pigs.]—*Boll. Ist. sieroter. Milano*. **34**, 665-688. [English summary.] **3116**

An attenuated strain of *L. australis* produced a mild, protracted, specific infection (confirmed immunologically) in g. pigs.

—T.E.G.R.

STUART, R. D. (1956). The importance of urinary antibodies in the diagnosis of leptospirosis. — *Canad. J. Microbiol.* **2**, 288-297. **3117**

Antibodies were usually demonstrable in the urine of patients with leptospira infection by the tenth day of illness and were almost invariably found by the second or third week. Absorption of these urinary antibodies with a heat-killed non-virulent strain of *L. icterohaemorrhagiae* or with kaolin increased the number of successful isolations of the organism in g. pigs. Antibodies were also found in the urine of dogs infected with *L. canicola*. Because of their stricter specificity, urinary antibodies were more helpful in determining the type of leptospira involved than were serum antibodies.

—C. E. RICE.

SEELIGER, H. P. R. & SULZBACHER, F. (1956). Antigenic relationships between *Listeria monocytogenes* and *Staphylococcus aureus*. — *Canad. J. Microbiol.* **2**, 220-231. **3118**

Reciprocal cross reactions were observed in agglutination, agglutinin-absorption, precipitation, and complement-fixation tests, between serotypes 1, 2, and 3 of *Erysipelothrix* (*Listeria*) *monocytogenes* and many strains of *Staph. aureus*, but not with serotypes 4a and 4b of the former. Most of the tests were made with rabbit antisera. Soluble heat-stable polysaccharide fractions were highly type-specific or species-specific in precipitation tests, except with antisera against *E. monocytogenes* serotype 3, which precipitated with polysaccharides of types 1, 2, and 3 and of most of the *Staph. aureus* strains.

—C. E. RICE.

KETTNER, H. (1954). Beitrag zur bakteriell bedingten Sterilität des Rindes und deren Behandlung mit Aureomycin. [Aureomycin

treatment of bovine infertility of bacterial origin.]—*Inaug. Diss., Munich*. pp. 43. **3119**

Various types of intra-uterine treatment with 6% aureomycin ointment (426 mg. in one tube) were applied to 500 cows that had had episodes of infertility due to a variety of bacteria (listed). Fertility ensued in 67.8% of the animals, viz. in 30% of those treated with half a tube (diluted), 78% of those treated with one tube between heats, and 62, 73 and 74% of those treated with one tube immediately, or on the first and second days after insemination, respectively.—G. P. MARSHALL.

FRANCIS, J., LANDQUIST, J. K., LEVI, A. A., SILK, J. A. & THORP, J. M. (1956). 2-Hydroxymethyl-3-methylquinoxaline 1 : 4-dioxide: a metabolite of 2 : 3-dimethylquinoxaline 1 : 4-dioxide active against gram-negative bacteria.—*Biochem. J.* **63**, 455-457. [Authors' summary copied verbatim.] **3120**

2:3-Dimethylquinoxaline 1:4-dioxide has little activity against *Salmonella dublin* and *Clostridium welchii* *in vitro*, but is converted *in vivo* into a highly active metabolite. The metabolite has been isolated and identified as 2-hydroxymethyl-3-methylquinoxaline 1:4-dioxide. The synthesis of the metabolite is described.

HUGHES, W. H. (1956). Bacterial variation to sensitivity: an example of individuality in micro-organisms.—*Nature, Lond.* **177**, 1132-1133. **3121**

Five ciné-micrographs are presented of a colony of cells derived from a single parent cell and growing in $\frac{1}{5}$ the normal inhibitory concentration of penicillin. One cell can be seen which failed to divide and eventually disintegrated.—M.G.G.

GARROD, L. P. (1956). Progress in medical bacteriology, 1915-1955.—*Canad. J. Microbiol.* **2**, 145-152. **3122**

Advances in medical bacteriology during the past 40 years are discussed under headings dealing with: recognition of new species; methods of identification of types; advances in techniques; study of bacterial metabolism; improvements in methods of immunization; and the increased volume and complexity of routine laboratory work due to the discovery of the sulphonamides and antibiotics.

—R. V. L. WALKER.

JELLISON, W. L. (1956). Haplomycosis in Sweden.—*Nord. VetMed.* **8**, 504-506. [In English. German and Swedish summaries. Abst. from English summary.] **3123**

The lungs of 31 field mice (*Apodemus flavicollis*), collected in Gävleborg, Sweden, were examined. One pair of lungs contained 2 spherules of *Haplosporangium*. This fungus has been demonstrated before in wild rodents from different parts of the world, but not in Europe.

MENGES, R. W. & GEORG, L. K. (1956). **Observations on feline ringworm caused by *Microsporium canis* and its public health significance.**—*Proc. 92nd Ann. Meet. Amer. vet. med. Ass.* 1955. 471-474. **3124**

M. canis was isolated from 42 out of 108 hair specimens from cats affected with skin lesions, and from similar specimens from 40 cats at the height of an outbreak in a breeding establishment, of which 24 had visible lesions of ringworm. Examination by Wood's light revealed fluorescence in only 26 of these 82 cases and direct microscopic examination revealed only 27. In 30 out of 47 families associated with these infected cats there was a history of skin lesions: in one case the organism was isolated from a child.—F.E.W.

HOK, K. A., HAMILTON, A. Y., PILCHER, K. S. & NIEMAN, R. (1956). **Antifungal activity of a new group of salicylamide derivatives for dermatophytes. I. *In vitro* activity of *N*-butyl-3-phenyl salicylamide.**—*Antibiot. & Chemother.* 6, 456-464. [Spanish summary pp. 473-474.] **3125**

This salicylamide derivative inhibited the growth of some common dermatophytes *in vitro* at a conc. of 12 µg./ml. and above.—R.M.

PLOWRIGHT, W. (1956). **Cutaneous streptothricosis of cattle. I. Introduction and epizootiological features in Nigeria.**—*Vet. Rec.* 68, 350-355. [Author's summary modified.] **3126**

The distribution of lesions of cutaneous streptothricosis in Nigerian cattle is described "Predilection" sites were also those of adults of *Amblyomma variegatum*. It was shown, in a controlled experiment, that the infection can be prevented by effective tick control with a benzene hexachloride dip. It was clearly demonstrated that exposure of cattle to high rainfall did not result in cutaneous streptothricosis, in the absence of severe tick infestation. The epidemiology of the disease is discussed in the light of these findings.

PIERCY, S. E. & KNIGHT, G. J. (1956). **Studies with avianised strains of the organism of contagious bovine pleuro-pneumonia. A further examination of growth and modification in embryonated eggs.**—*Vet. Rec.* 68, 367-373. [Abst. from authors' summary.] **3127**

Chick embryo was a good medium for the organism which, stored at -25°C., retained its viability for two and a half years. The titre was increased by storing wet material at +4°C. for 2 days, and by lowering incubation temp. from 35° to 32.2°C. Embryo, yolk, allantoic fluid and chorio-allantoic membrane contained high titres. Albumen had no bactericidal effect. After 25 passages in chick embryo the organism caused no local reactions in cattle and, at dilutions of 1:100 and 1:1,000, immunized against "needle" challenge. It is considered that passage does not lower its virulence.

LÖLIGER, H. -C. (1956). **Der Keimgehalt des Ziegenbockspermas. [Bacterial content of goat semen.]**—*Fortpflanzung.* 6, 77-78. [English summary.] **3128**

Semen samples from 39 goats were cultivated for bacterial content. *Bacterium coli* was demonstrated in 13, *Pseudomonas fluorescens* in 3 and *Micrococcus aureus* in one.—M.G.G.

FLINT, J. C. & McKELVIE, D. H. (1956). **Feline infectious anemia—diagnosis and treatment.**—*Proc. 92nd Ann. Meet. Amer. vet. med. Ass.* 1955. 240-242. **3129**

An account of a severe anaemia of cats, associated with wasting, and considered to be caused by a pleomorphic micro-organism, stated to be demonstrable from time to time, attached to the r.b.c., in peripheral blood smears stained by the Giemsa method (photomicrograph reproduced). The Hb content of the blood varies from 7 g./100 ml. to less than 4 g., the r.b.c. count being correspondingly low, with anisocytosis. The disease has been reproduced experimentally [no details given]. It can be treated in earlier stages by blood transfusion (40-50 ml.) and i/v inj. of arsenical compounds, "mepharsen" being the most effective, but some cats are sensitive to the drug. Chloramphenicol, terramycin and tetracycline *per os* (100 mg. twice daily for 18-21 days) were also of value, and were safer. The authors proposed to name the organism *Haemobartonella felis*.—F.E.W.

DISEASES CAUSED BY PROTOZOAN PARASITES

FEDERATION OF RHODESIA AND NYASALAND.
(1955). **Report of the Commission of Inquiry on Human and Animal Trypanosomiasis in Southern Rhodesia.**—pp. 115. Salisbury: Govt. Printer. **3130**

As a result of evidence submitted (synopsis given in an appendix) the Commission recommend a reconstitution of the Trypanosomiasis Committee to advise a new Department of Tsetse and Trypanosomiasis Control and Reclamation. Drug control of trypanosomiasis in the face of heavy fly has not been successful and control of the fly is the only way to control the disease. For this the Commission recommends discriminative clearing combined with close settlement, and, in special circumstances, the use of modern insecticides. Game destruction should, however, continue under strict control, until the other methods are established.—R. G. MARES.

CARMINATI, G. M. (1955). Ricerche sull'infezione sperimentale mista da *Borrelia duttoni* e *Tryp. equiperdum*. [Mixed experimental infection with *Borrelia duttoni* and *Trypanosoma equiperdum*.] — *Boll. Ist. sieroter. Milano*. **34**, 503-520. [English summary.] **3131**

Concurrent *B. duttoni* infection prolonged the course of trypanosome infection in mice by several days. This effect was observed only in acute infections with both organisms and persisted after *Borrelia* disappeared from the blood. Trypanosome antibodies were not found in *B. duttoni* antiserum. Mixed infection was more severe than the chronic form of either infection; the chemotherapeutic action of drugs (arsenious oxide and certain antibiotics) was the same in mixed as in individual infections.—T.E.G.R.

SENZE, A. (1955). Wczesne określanie rzęśnicy u ciężarnych krów przy pomocy stilboestrolu. [Early diagnosis of trichomonas infection in pregnant cows by means of their reaction to stilboestrol injection.] — *Weterynaria, Wrocław*. **1**, 95-102. [In Polish. English and Russian summaries.] **3132**

Trichomonas abortion is a serious problem in Poland. S. discusses the difficulty in diagnosing trichomonas infection in early pregnancy. He injected cows, 6-10 weeks pregnant, with 10-15 ml. stilboestrol s/c and found that cows whose vaginal mucus examined 24 hours after injection was positive for trichomonas usually aborted 24-48 hours after injection. Non-infected cows did not react to such small doses of stilboestrol.—M. GITTER.

HILBRICH, P. (1956). Prophylaxe und Therapie der Küken-Blinddarmkokzidiose mit Nitrofurazon. [Prophylaxis and treatment of caecal coccidiosis in chicks by nitrofurazone.] — *Berl. Münch. tierärztl. Wschr.* **69**, 187-190. [English summary.] **3133**

Enquiries with users of nitrofurazone-medicated feeds, as well as experiments with these in groups of 15 animals under various conditions, showed that the drug is ineffective in preventing, or lowering the death rate from, outbreaks of caecal coccidiosis in chicks when added to their feed in concentrations of 0.0055 or 0.011% for periods ranging from 8 to 13 days. —G. P. MARSHALL.

TROFIMOV, I. T. (1955). [Pathological anatomy and the pathogenesis of *Nuttallia* infection in horses.] — *Sborn. Rabot XXXVI Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow* 1952. pp. 122-132. [In Russian.] **3134**

T. studied *Babesia* (*Nuttallia*) *equi* infection as it occurs in horses in the central regions of the U.S.S.R. He observed two types of intracellular inclusions in infected horses. The first type, associated with acute infection, occurred in endothelial cells of lymph nodes, lungs and liver. They were 1-1.5 μ in diam. and colonies of them formed macroscopic lesions, which presented a striking appearance when they occurred under the pleura of the lungs. The second type, found in cases of chronic infection, occurred in the kidney, under the capsule and in the epithelium of Henle's loop; they were 18-30 μ in diam. Lymphadenitis of the prescapular, popliteal and peri-rectal lymph nodes and broncho-pneumonia occurred as localized forms of *B. equi* infection, associated with the presence of colonies of inclusions, which T. considered to be an extra-erythrocytic stage of the parasite.

He postulated that sporozoites, after entering the body from the tick intermediate host, travelled *via* the blood to the lungs or *via* lymph to the lymph nodes, where the extra-erythrocytic stage occurred. After 5-6 days mature *Babesia* were liberated into the bloodstream and invaded the erythrocytes. Piroplasmosis of horses occurring in the central regions differed considerably from that observed in the southern regions of the U.S.S.R. The latter was a more severe disease and localized forms (lymphadenitis and broncho-pneumonia) did not occur, neither were there intra-cellular inclusions.—R.M.

PETROVA, E. V. (1955). [Pharmacology of hemospardin and its use in *Babesia* infection]

in cattle.]—*Sborn. Rabot XXXVI Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow 1952. pp. 179-184. [In Russian.]* **3135**

P. studied the action of hemosporidin (dicupric hydrochloride of the dimethylaminoethyl ester of benzhydrol) on the blood picture, phagocytosis, blood sugar and chloride, and the digestive system of healthy cattle and horses and on animals with *Babesia* infection. He confirmed that the drug was highly effective against *Babesia*, at a dosage of 0.6 mg./kg. body wt., given s/c. In order to minimize a stimulant action of the drug on the motor nerves of the digestive tract, the dose was divided into two parts, the second part being given 2 hours after the first. [See also *V.B.* 26, 2246 & 2247.]

—R.M.

GUSEV, V. F. (1955). [Treatment of *Babesia* infection in horses and cattle with tiargen, hemosporidin and bigumal in the Belorusskaya S.S.R.]—*Sborn. Rabot XXXVI Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow 1952. pp. 163-171. [In Russian.]* **3136**

G. confirmed the value of hemosporidin for the treatment of piroplasmiasis in horses and cattle. Tiargen (sodium silver pentathiosulphate) was effective when given as a single i/v injection to cattle, but was not recommended for use in horses. [See also *V.B.* 26, 1595]. Bigumal (a biguanide derivative) was of no therapeutic value.—R.M.

ZOLOTAREV, N. A. & VANNOVSKII, T. N. (1955). [Chemoprophylaxis of *Theileria* infection in cattle.]—*Sborn. Rabot XXXVI Plenum. vet. Sect., Akad. sel'skokhoz. Nauk imeni Lenin., Moscow 1952. pp. 172-178. [In Russian.]* **3137**

In Dagestan about one third of the cattle developed *Th. annulata* infection during the course of a year. Suramin protected a high proportion of cattle from infection when given as a single i/v inj. during June or July, at a dosage of 0.015 g./kg. body wt. Sulfantrol (stated to be the sodium salt of sulphanilamidobenzoic acid) was slightly less effective as a prophylactic and had to be administered by i/m inj. once weekly for up to 10 weeks. The dosage was 0.003 g./kg. body wt.—R.M.

CARDASSIS, J. (1956). Essais de traitement de la theileriose bovine grecque par quelques antipaludiques de synthèse: la quinacrine et la paludrine. [Treatment of *Theileria dispar* infection in cattle in Greece with quinacrine

and paludrine.] — *Bull. Acad. vét. Fr.* 29, 66-72. **3138**

Mepacrine ("quinacrine"), alone or with quinine, was ineffective against theileriasis. Chlorguanide ("paludrine"), 2-3 g. injected i/m, (two or three injections with a 24-hour interval), cured 17 out of 21 animals.

—JAS. G. O'SULLIVAN.

ROSSI, P., TRIOZON, F. & BUSSIERAS, J. (1956). L'anaplasmose bovine française. [Anaplasma infection in cattle in France.]—*Rev. Méd. vét.* 107, 219-240. **3139**

An autochthonous outbreak of anaplasmosis in France is described. A detailed account is given of formation of the parasite within the r.b.c., the clinical manifestations, the blood and urine changes, and the treatment.

—E. J. L. SOULSBY.

PEARSON, C. C., BROCK, W. E. & KLIEWER, I. O. (1956). A preliminary report on the use of the complement-fixation test as an aid in the control of anaplasmosis in range cattle.—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955, 98-102. **3140**

Of 653 cattle tested for anaplasmosis by the c.f. test, 110 were positive reactors and 10 doubtful in 1954, and 96 were positive and 18 doubtful in 1955. The similarity of results indicates the accuracy of this test.—M.G.G.

LOHRENGEL, F. (1956). Spirotrypan "forte" in der Behandlung der Anaplasmosis auf der Zentralhochebene von Costa Rica. [Treatment of anaplasmosis in Costa Rica with a proprietary arsenobenzene compound.]—*Tierärztl. Umsch.* 11, 144-146. **3141**

L. discusses the chemistry and pharmacology of "Spirotrypan 'forte'" which is essentially the drug "Spirotrypan" used in human medicine for trypanosome and spirochaete infections. Details of the use of the drug in 8 cases of anaplasmosis in cattle are recorded. The drug is superior to previous therapeutic agents, but care is necessary in markedly anaemic animals.—E. J. L. SOULSBY.

GROULADE, P., SERGENT, G. & BEQUIGNON, R. (1956). Formes cliniques de la toxoplasmose chez les carnivores domestiques. [Clinical forms of toxoplasmosis in dogs and cats.]—*Bull. Acad. vét. Fr.* 29, 49-56. Discussion: pp. 56-57. **3142**

The signs of toxoplasmosis in the dog and cat are described. They are mainly nervous, but may include eye disturbances, enlargement of the spleen, and ascites. Toxoplasmosis was

suspected in all cases of encephalitis not otherwise accounted for. Of 59 dogs and 18 cats examined in 1955 by the rabies service at the Institut Pasteur, 50 and 12, respectively, were found to be infected with toxoplasmas.

—JAS. G. O'SULLIVAN.

POTTS, R. E. & WILLIAMS, A. A. (1956). **Acute myocardial toxoplasmosis.** — *Lancet*. **270**, 483-484. **3143**

An acute case of myocardial toxoplasmosis is reported in a man. The diagnosis, which was based on a positive dye test (1:32) and complement-fixation test (1:8), was confirmed P.M. by animal inoculation of heart muscle. In a consideration of the aetiology of this case atten-

tion is drawn to a fatal illness in the patient's dog which occurred some months earlier and was characterized by diarrhoea and vomiting.

—A. E. PIERCE.

BALDUCCI, D. & TYRRELL, D. (1956). **Quantitative studies of *Toxoplasma gondii* in culture of trypsin-dispersed mammalian cells.** — *Brit. J. exp. Path.* **37**, 168-175. [Abst. from authors' summary.] **3144**

T. gondii grew in tissue cultures of rabbit kidney, monkey kidney and human carcinoma at the expense of epithelial cells. Complement-fixing antigen was obtained by harvesting the culture fluids after most of the cells had been destroyed or damaged.

See also absts. **3219** (ascites tumour and eperythrozoonosis in mice); **3330** (report, Union of S. Africa).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

KÖTSCHKE, W. (1955). Die Anpassung des Maul- und-Klauenseuche-Rindervirus vom Typ O an die erwachsene weisse Maus. [Adaptation of foot and mouth disease virus type O to the adult mouse.] — *Arch. exp. VetMed.* **9**, 844-851. **3145**

By using mice of gradually increasing age, F. & M. disease virus type O was adapted i/p to serial passage in adult mice. The musculature of the pelvic girdle was the most suitable for recovery of the virus. The titre in unweaned mice of 10^{-5} bovine infectious dose sank to 10^{-1} in adult mice. —M.G.G.

MIERES, A., GARCÍA MATA, E., ARAMBURU, H. G., FEDERER, K. E. & PIZZI, L. (1955). Contribucion a la histopatologia de la infeccion aftosa experimental en el raton lactante. [The histology of experimental foot and mouth disease in young rats.] — *Gac. vet., B. Aires.* **17**, 247-267. [English summary.] **3146**

In experimental infection of young rats the microscopic lesions were mainly of a degenerative type and were found predominantly in skeletal muscles, followed, in order of importance, by the alimentary tract (especially stomach and intestine), lungs, kidneys, liver and nervous system. —T.E.G.R.

IVANOV, A. D. (1956). [Intradermal administration of foot and mouth disease vaccine.] — *Veterinariya, Moscow.* **33**, No. 4. p. 48. [In Russian.] **3147**

A brief note on the successful immunization of cattle, sheep and camels against F. & M. disease by the i/d inoculation of 0.5-2 ml. vaccine. Animals were immune from the 8-10th day after inoculation to the 8th month. —R.M.

MALIANDI, F. P. (1955). Las globulinas del suero antiaftoso. [The globulin content of foot and mouth disease immune serum.] — *Rev. Med. vet., B. Aires.* **37**, 69-72 & 75-81. **3148**

Globulins of monovalent immune sera (Anti-"O") were concentrated by precipitation, using 21.5% sodium sulphate solution. The protective power of the concentrated serum was confirmed by biological tests. The necessity for further studies on the subject is stressed.

—T.E.G.R.

BRADISH, C. J., BROOKSBY, J. B. & DILLON, J. F., JR. (1956). **Biophysical studies of the virus system of vesicular stomatitis.** — *J. gen. Microbiol.* **14**, 290-314. [Authors' summary modified.] **3149**

Biophysical studies of the virus system of vesicular stomatitis passaged in eggs showed that the major part of the infectivity was associated with a component of sedimentation coefficient 625 S. A component of sedimentation coefficient 330 S was observed also, and was probably a non-infective product of disintegration of the 625 S component. These components contributed about 35% of the total complement-fixing activity of the virus. All infective materials were handled in subdued light [see *V.B.* **24**, 3168]. Electron micrographs of the infective fraction revealed rods 175 m μ long and 69 m μ wide, and almost spherical granules 65 m μ in diameter. These particles were identified with the 625 S and 330 S components. The structure of the virus system was discussed.

TIERKEL, E. (1956). **Methods of rabies control at local level.** — *Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 277-312. **3150**

The present position and the history of rabies control in 10 representative cities of the U.S.A. were surveyed. Tables are given showing for each city the legislation regarding dogs, the administration and cost of stray dog control, percentages of rabid and vaccinated dogs, management of emergency vaccination campaigns, treatment of dog bites and methods of public education.—M.G.G.

CAMARGO N., F. (1956). The derriengue problem in Mexico.—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 313-318. **3151**

Since 1952 some 2,300,000 cattle have been vaccinated against this paralytic form of rabies, transmitted by the vampire bat. The vaccine is a living chick embryo-adapted Flury strain of virus. A single injection confers immunity for 2 years.—M.G.G.

BUCCA, M. A. (1956). The effect of various chemical agents on Eastern equine encephalomyelitis virus.—*J. Bact.* **71**, 491-492. **3152**

The effect of various chemical agents on the virus was determined by placing agent and virus in contact for varying periods before intracerebral titration in mice. Many of the agents proved to be strongly viricidal after a 5 min. contact period, and most were viricidal after a 24-hour contact period.—M.G.G.

VICTOR, J., SMITH, D. G. & POLLACK, A. D. (1956). The comparative pathology of Venezuelan equine encephalomyelitis.—*J. infect. Dis.* **98**, 55-66. **3153**

In g. pigs and rabbits the virus had marked viscerotropic effects upon the lymphomyelopoietic system, producing necrosis of all lymphoid and myeloid tissues with a lesion of the spleen characterized by necrosis of the Malpighian follicles. In mice and monkeys neurotropic effects followed infection independent of the route of inoculation. The virus was lethal to mice, g. pigs and rabbits but monkeys usually survived infection. The blood of g. pigs showed a marked leucopenia within two days after infection by the s/c route.—W. E. PARISH.

MATTHIAS, D. (1955). Zur Epidemiologie der Bornaschen Krankheit. [Epidemiology of Borna disease.]—*Arch. exp. VetMed.* **9**, 824-843. **3154**

Borna disease could not be induced in rabbits, sheep and horses by close contact with diseased animals nor by the administration of virus by stomach tube, oral spray or infected strongylid larvae. Intranasal instillation of virus suspension induced the disease in 70-80% of rabbits and in 3 out of 12 sheep, but not in

7 horses. Animals were not infected, however, by the instillation of infected dust. Intracerebral inoculation of non-pathogenic cocci at the same time as infection with Borna virus produced the disease in rabbits, in one out of 6 sheep and in 2 out of 3 horses. Fowls were susceptible to Borna disease but not pigs and hamsters.—M.G.G.

IVANOV, A. [Edited by.] (1956). [Trials of the method for provoking latent equine infectious anaemia by atropine and adrenaeline: a discussion.]—*Veterinariya, Moscow.* **33**, No. 4. pp. 39-45. [In Russian.] **3155**

Abstracts of 5 papers on this subject sent to the editor by other authors were presented. The general opinion was that the injection of atropine and adrenaeline failed to reveal latent or chronic equine infectious anaemia. This is in agreement with the findings of Levashov and Alshkin [*V.B.* **26**, 1240].—R.M.

PEARSON, I. G. (1956). Bovine malignant catarrh in Australia.—*Aust. vet. J.* **32**, 77-88. [Author's summary copied *verbatim*.] **3156**

Data are presented in support of diagnoses confirming the presence in Australia of bovine malignant catarrh, most cases occurring on south western slopes of New South Wales. These include a summary of the present state of knowledge concerning the disease, a description of six cases, transmission experiments undertaken, histopathological and bacteriological examinations made, and a summary of diseases to be considered in differential diagnosis.

A list of optimum specimens is suggested.

DIERNHOFER, K. (1956). Die infektiöse Bronchitis und Bronchopneumonie des Rindes und ihre Behandlung. [Treatment of infectious bronchitis and broncho-pneumonia in cattle.]—*Wien. tierärztl. Mschr.* **43**, 265-272. [English, French and Italian summaries.] **3157**

The successful treatment of affected cattle with "Othromin" (hexamethylenetetramine thiocyanic acid) and procaine penicillin was reported. Penicillin was particularly effective, the dosage being 1½-2 million units injected i/m daily for a period of 1-4 days. D. suggested that the drug's effectiveness lay in its inhibition of secondary infections.—M.G.G.

WUNNER, H. & ZRENNER, K. (1956). Die Papillomatose des Rindes. [Bovine papillomatosis.]—*Tierärztl. Umsch.* **11**, 173-175. **3158**

The condition of cutaneous papillomatosis

is reviewed, with special reference to treatment (including surgery), and the successful use is reported of formolized vaccines in causing regression of warts, including those on the udder. The vaccine was autogenous when only one animal in a herd was affected, or was prepared from wart material from one animal only when a number in a herd were affected. The warts regressed within 3 months in 38 out of 40 animals treated.—E. COTCHIN.

McGOWAN, B., MCKERCHER, D. G. & SHULTZ, G. (1956). **Studies on bluetongue. IV. Field trial of a modified live virus vaccine.**—*J. Amer. vet. med. Ass.* **128**, 454-456. [Abst. from authors' summary and addendum.] **3159**

Results of field trials with an attenuated chick embryo vaccine were considered satisfactory. However, when widespread use was subsequently made of the vaccine produced on commercial lines losses occurred among newborn lambs of ewes vaccinated in early pregnancy.

MIMS, C. A. (1956). **Rift Valley fever virus in mice. I. General features of the infection. II. Adsorption and multiplication of virus. III. Further quantitative features of the infective process. IV. Incomplete virus: its production and properties.**—*Brit. J. exp. Path.* **37**, 99-109; 110-119; 120-128 & 129-143. [Survey of papers, p. 1, slightly modified.] **3160**

I. Intracerebral or intravenous inoculation of Rift Valley fever virus produced rapidly fatal infection in mice with very high titres of virus in the blood. By either route the virus was viscerotropic and intracerebral titrations were shown to give reproducible results.

II. Infectivity titrations on blood and suspensions of carcass at intervals after inoculation with different amounts of virus showed that adsorption occurs mainly in the first hour and that liberation is detected after 5-9 hours. After a period varying with the dose, similar peak blood titres are reached.

III. The adsorption of virus from the blood after inoculation of different amounts was investigated. Virus taken up at this stage is not detectable and the log. of the amount unadsorbed is proportional to the log. of the dose. Even after very large doses, mice do not die until one cycle of growth is completed.

IV. Serial passage in mice of large inocula yields low infectivity titres. This is attributed to interference by incomplete virus particles which are antigenically active. High infective

titres regularly reappear later during serial transfer and could be explained by the production of incomplete virus which is non-interfering.

ABREU LOPES, J. A. (1955). O valor da protrombina na peste suína. [**Prothrombinaemia in pigs with swine fever.**]—*Proteus, Lisboa*. **1**, 43-57. [French summary.] **3161**

There was no appreciable rise in the prothrombin values of 40 pigs in the course of acute experimental swine fever. [But see also *V.B.* **22**, 2818.]—T.E.G.R.

BANKOWSKI, R. A., PERKINS, A. G., STUART, E. E. & KUMMER, M. (1956). **Epizootiology of vesicular exanthema in California.**—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* **1955**, 356-367. **3162**

A study of the incidence of the disease in California from 1940 onwards revealed a tendency for sharp rises to occur within 2-year periods followed by a year with low incidence. In the first half of 1955, when in accordance with this trend the incidence would have been expected to rise, it remained low: this corresponded with an increase in the facilities available for cooking of swill. With each of the 4 types of virus (B, C, D and E) responsible for outbreaks between Oct. 1951 and June 1955, the intensity of the outbreaks varied. In herds in which there were recurrent outbreaks due to the same immunological type of virus, the later outbreaks were confined to newly introduced susceptible pigs. In 5 counties where the disease continued to occur even on farms where swill was apparently efficiently cooked, waves of outbreaks followed a pattern of persistence of a particular type of virus in an area for irregular periods. It was established that subclinical infection can occur.—F.E.W.

BÖRNFORS, S. & LANNEK, N. (1956). Förebyggande behandling mot enzootisk pneumoni (s.k. svininfluensa) med terramycin och tetracyklin. [**Prophylactic treatment against enzootic pneumonia (so-called swine influenza) with terramycin and tetracycline.**]—*Medlemsbl. Sver. VetFörb.* **8**, 66 & 68-69. [In Swedish.] **3163**

An account in Swedish of the work previously abstracted [*V.B.* **26**, 1972].—R.M.

PLACIDI, L. & HAAG, J. (1956). La pneumonie à virus du porc. Étude clinique et expérimentale d'une épizootie au Maroc. II. Étude expérimentale. [**An outbreak of porcine virus pneumonia in Morocco. II. Experimental study.**]—*Rec. Méd. vét.* **132**, 89-105. **3164**

This disease is regarded as a strictly pul-

monary infection, and accompanying symptoms, especially those associated with the c.n.s., are considered of no diagnostic value. Experimental transmission was carried out in young pigs by direct contact and by injection of a suspension of ground infected lung tissue into the trachea and into the lungs (through the chest-wall). It is considered that the causal organism should be included in the influenza group of viruses.

—T.E.G.R.

REINHARD, K. R., RAUSCH, R. L. & GRAY, R. L. (1956). **Field investigations of prophylaxis against epizootic distemper in arctic sled dogs.** — *Proc. 92nd Ann. Meet. Amer. vet. med. Ass.* 1955, 223-227. **3165**

Outbreaks of dog distemper in 3 Eskimo villages in Alaska were described. One outbreak was quickly controlled by vaccination of all dogs with egg-adapted virus vaccine. Vaccination of 50% of the dogs and s/c injection of antiserum in the remainder did not prevent an outbreak in a second village, but the morbidity rate in dogs given antiserum was only 18%, as against 100% in untreated dogs.

—M.G.G.

OCHI, Y., KONISHI, S., TAKIZAWA, T., Ikegami, T., YAMAMOTO, S., ISHIDA, K. & SATO, A. (1956). **Studies on infectious hepatitis in the dog.** — *Zbl. VetMed.* **3**, 55-62. [In English. French, German and Spanish summaries.] **3166**

The authors report first experimental results using a strain of canine hepatitis virus isolated in Japan. There was no difference in the clinical or histopathological picture of the disease produced by this strain and other isolated strains from different parts of the world. The authors were unable to transmit the infection to chick embryos, or to white mice, although different routes of inoculation and various tissues were used.—W. MANSI.

THORDAL-CHRISTENSEN, A. (1955). **Cytopathogenic changes in tissue cultures, induced by the virus of hepatitis contagiosa canis.** — *K. VetHøjsk. Aarsskr.* pp. 78-106. [In English.] **3167**

In tissue culture spindle cells assumed a rounded form and fat granules appeared in their cytoplasm producing a glistening effect in unstained preparations. At the same time inclusion bodies, sometimes surrounded by a halo, developed in the nuclei. These bodies probably contain desoxyribonucleic acid. Hyperchromatosis of the nuclear wall, due to peripheral displacement of the chromatin, was also

observed at times. The altered cells underwent progressive degeneration (shrinkage, necrosis disintegration and loss of staining properties). Inclusion bodies appeared also in the nuclei of new epithelial cells in certain tissues (e.g. kidney and intestine) and in the interstitial cells in explants of testicular tissue. Animal inoculation and c.f. tests revealed that inclusion bodies were indicative of multiplication of virus. A number of apparently normal cells were frequently found. The cell changes were also observed in tissues from immunized animals. Addition of specific immune serum to the culture prevented or arrested morphological changes and multiplication of virus. Ascitic fluid from certain dogs protected cells from the virus even though the c.f. test revealed no specific antibodies.

—T.E.G.R.

MACPHERSON, L. W. (1956). **Some observations on the epizootiology of Newcastle disease.** — *Canad. J. comp. Med.* **20**, 155-168. [French summary.] **3168**

Newcastle disease in Scotland was studied and supportive evidence presented to indicate that an epizootic in the north-west regions appeared in 1897-98. Studies during field control operations in 1949-51 proved the cormorant to be a carrier of the virus and to have been the source of infection in many outbreaks.

—R. V. L. WALKER.

OBEL, A. -L., BAKOS, K. & SUNDBERG, O. T. (1956). **Untersuchungen über die Ursache der Dyspnoe bei experimenteller Newcastle-Krankheit des Huhnes. [Investigation into the cause of dyspnoea in experimental Newcastle disease of poultry.]** — *Nord. VetMed.* **8**, 243-249. [In German. English and Swedish summaries.] **3169**

Severe dyspnoea was observed clinically in all of 5 fowls infected intratracheally and in 5 out of 9 infected by oral administration of Newcastle disease virus. This is considered to be due to the severe bronchial haemorrhage which was invariably found on histological examination. Bronchial haemorrhage was, however, present in 3 of the 4 birds which had received Newcastle disease virus intramuscularly without manifesting dyspnoea. In this case the haemorrhage must be interpreted as purely terminal.

—W. G. SILLER.

BURMESTER, B. R., CUNNINGHAM, C. H., COTTRAL, G. E., BELDING, R. C. & GENTRY, R. F. (1956). **The transmission of visceral lymphomatosis with live virus Newcastle disease vaccines.** — *Amer. J. vet. Res.* **17**,

283-289. [Abst. from authors' summary.] 3170

As a result of experiments the conclusion is drawn that visceral lymphomatosis can be transmitted by live Newcastle disease vaccines if the latter are prepared from chick embryos of infected hens.

EVANS, A. S. (1956). The laboratory diagnosis of Newcastle disease in man.—*Amer. J. clin. Path.* 26, 163-165. 3171

It is considered that a positive diagnosis must be based on isolation of the virus and on neutralization tests to the exclusion of other possible casual agents.—T.E.G.R.

MATANEY, C. F., POMEROY, B. S. & OSBORN, O. H. (1956). Studies on egg transmission of the agent of infectious sinusitis of turkeys.—*Proc. 92nd Ann. Meet. Amer. vet. med. Ass.* 1955. 310-314. Discussion: 314-315. 3172

Infectious sinusitis was induced in healthy turkeys by the inoculation of yolk or ground tissue from the eggs and poults of infected turkeys.—M.G.G.

DAVIS, D. E. & DELAPLANE, J. P. (1956). Turkey ornithosis: therapy and control.—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 250-253. 3173

The symptoms and lesions of psittacosis in experimentally infected poults were described. Chlortetracycline prevented mortality at 100 g. per ton of food, suppressed symptoms at 200 g./ton and prevented recovery of the virus at 400 g./ton.—M.G.G.

SCHOOP, G. & KAUKER, E. (1956). Infektion eines Rinderbestandes durch ein Virus der Psittakosis - Lymphogranuloma - Gruppe. Gehäufte Aborte im Verlauf der Erkrankungen. [Infection of a herd of cattle with a virus of the psittacosis-lymphogranuloma group, accompanied by numerous abortions.]—*Dtsch. tierärztl. Wschr.* 63, 233-235. 3174

Chronic infection with a virus of the psittacosis-lymphogranuloma group was diagnosed in a herd of cattle by serological and mouse inoculation tests. The chief symptoms were abortion and a marked decline in milk yield.—M.G.G.

I. MATUMOTO, M., OMORI, T., HARADA, K., INABA, Y., MORIMOTO, T., ISHITANI, R. & ISHII, S. (1955). Studies on the disease of cattle caused by a psittacosis-lymphogranuloma group virus (Miyagawanella). VI. Bo-

vine pneumonia caused by this virus.—*Jap. J. exp. Med.* 25, 23-34. [In English.] 3175

II. KAWAKAMI, Y., OMORI, T., FUKUHARA, S., TOKUDA, G., ISHII, S. & MATUMOTO, M. (1955). Studies on the disease of cattle caused by a psittacosis-lymphogranuloma group virus (Miyagawanella). VII. Isolation of a virus, identified as a member of the psittacosis-lymphogranuloma group of viruses, from feces of cattle.—*Ibid.* 51-63. [In English.] 3176

I & II. An organism isolated from lung lesions, tracheal mucus and nasal discharge of dairy cows affected with broncho-pneumonia and from the faeces of cows with diarrhoea was identified as a member of the psittacosis-lymphogranuloma group of viruses by its morphological characters, staining and c.f. reactions. It was pathogenic for chick embryos, g. pigs and mice.—T.E.G.R.

MITCHELL, C. A., WALKER, R. V. L. & BANISTER, G. L. (1956). Studies relating to the formation of neutralizing antibody following the propagation of influenza and Newcastle disease virus in the bovine mammary gland.—*Canad. J. Microbiol.* 2, 322-328. 3177

After instillation of influenza A (PR8) and Newcastle disease virus into the mammary gland of healthy goats in active lactation, virus could be detected in the milk for about 10 days. Soon afterwards, antibody appeared in the milk from the treated half, later in the blood serum, and then in milk from the other half. About 40 days after instillation of virus, when there was a substantial antibody content in both milk and blood serum, the whole gland or the half which had been instilled was removed surgically. Within two weeks a sharp decline in N.D.V. antibody in the serum had occurred, suggesting that the mammary gland was the principal seat of production of antibody for this virus. The influenza antibody fell slowly but was present at a substantial level for months. It is suggested that the mammary gland tissue is not so intimately related to antibody production for influenza as for Newcastle disease virus.

—C. E. RICE.

BINDRICH, H. & SCHMIDT, U. (1955). Über die Chloroformresistenz einiger Virusarten. (Atypische und klassische Geflügelpest, Staupe, Tollwut, Poliomyelitis murium). [Resistance of viruses to chloroform. (Newcastle disease, fowl plague, distemper, rabies, Poliomyelitis murium).]—*Arch. exp. VetMed.* 9, 922-934. 3178

The pathogenic and immunogenic properties of these viruses after 15 min. exposure to chloroform were tested by animal inoculation. Newcastle disease virus was no longer pathogenic, and conferred immunity on one out of 8 fowls; fowl plague virus was pathogenic for 2 out of 4 fowls, but was not immunogenic; distemper virus, strain "Greifswald," lost its pathogenic but retained its immunogenic properties; the "Berlin" strain of distemper virus, the Flury strain of rabies virus and the virus of murine poliomyelitis were resistant to chloroform.—M.G.G.

LEKA, D., MORET, R., SOHIER, R. & TIGAUD, J. (1956). Concentration des liquides amniotiques et allantoïques infectés par des virus, au moyen de la dialyse contre le polyvinylpyrrolidone. Premiers essais. [**Concentration of amniotic and allantoic fluid infected with virus, by dialysis against polyvinylpyrrolidone.**]—*Ann. Inst. Pasteur*. **90**, 770-778. [English summary modified.] **3179**

A concentration can be obtained of certain of the constituents of the amniotic and allantoic liquids of the chick-embryo infected by viruses by dialysing them against a concentrated solution of polyvinylpyrrolidone. Comparative study of original infected liquids and of those the volume of which was reduced 5 to 15 times by dialysis, revealed in the latter a net increase of haemagglutinating power and of the antigenic titre. Similarly the percentage of proteins and of certain polypeptides showed a definite increase. This method has the advantage of being simple, rapid and economical, and can be utilized at a low temperature (0° to 4°C.) and without risk of contamination of the products to be concentrated.

See also *absts.* 3058 (bacteriophage typing of mastitis staphylococci); 3095 (bacteriophages and antibiotics); 3100 (comparison of salmonellosis and rinderpest in rabbits); 3390 (report, Union of S. Africa); 3331 (report, Cyprus); 3333 (report, Fiji); 3334 (report, Somaliland).

IMMUNITY

BURNET, F. M. (1956). **Qualitative differences in the immune response.**—*Canad. J. Microbiol.* **2**, 153-162. **3183**

B. considers that there are four basic types of response to antigen: classical antibody production, the hay fever type of hypersensitivity, the tuberculin type of hypersensitivity, and specific immunological tolerance. What is known about these four responses is reviewed and considered in relation to the hypothesis that endogenously-produced "genocopies" of certain proteins exist within the cell which act as templates in determining the configuration of the

MONDOLFO, H. & MONDOLFO HOUNIE, E. (1955). L'azione dell'aureomicina sul virus batteriofagico. [**The action of aureomycin on bacteriophage.**]—*Boll. Ist. sieroter. Milano*. **34**, 541-545. [English summary.] **3180**

It is considered that aureomycin inhibits the action of bacteriophage by altering the metabolism—not the structure—of the bacterial cells, increasing their resistance.—T.E.G.R.

BUCCO, G. & MAZZITELLI, L. (1955). Sulla presenza di anticorpi per *C. burneti* in ovini e bovini macellati in Campania. [**R. burneti antibodies in slaughter sheep and cattle in Campania, Italy.**]—*Boll. Ist. sieroter. Milano*. **34**, 647-652. [English summary.] **3181**

The sera of 433 slaughter cattle and 338 slaughter sheep were subjected to the complement-fixation test. Positive results were obtained in 13.6% and 31.45% respectively.

—T.E.G.R.

OWEN, C. R. & LARSON, C. L. (1956). **Studies on resistance to bacterial infections in animals infected with rickettsiae.**—*J. exp. Med.* **103**, 753-763. [Abst. from authors' summary.] **3182**

Resistance to subsequent infection with *Pasteurella pestis* or *Brucella tularensis* in animals was observed 16-96 hours after experimental infection with *Rickettsia typhi*. This interference phenomenon is a local tissue reaction and can be overcome by a larger number or a more virulent strain of bacteria; it is not considered to be the effect of antibiotic action of rickettsia.

proteins being synthesized. The "genocopies" may be modified through contact with antigen so that the protein synthesized has the complementary pattern of antibody. Interference during embryonic life results in intracellular antibody and a mechanism for its further production; this corresponds to specific immune tolerance. When interference occurs after birth, there is in addition a transfer of the self-replicating mechanism to cells of the lymphoid system with consequent output of extra-cellular antibody—the classical type of response. The hypersensitivity responses are intermediate,

depending upon the transferability of the self-replicating mechanism, the amount of antibody released or attached to tissue cells.—C. E. RICE.

SOBEY, W. R., ADAMS, K. M. & CLARINGBOLD, P. J. (1956). **Inheritance of antibody response. II. Measurement of response.**—*Aust. J. biol. Sci.* **9**, 188-198. [Authors' summary modified.] **3184**

The haemolytic titre as estimated by a dilution series is a very precise measure of response to antigenic stimulation when compared with biological variation. Such variables as age of complement, level of complement, age and source of red cells, storage prior to reading, dose of red cells, and time of obtaining antisera, are additive in their effect on titre. Valid comparisons may be made under an arbitrarily selected combination of these. Both primary and secondary time-response curves have a biphasic form.

LANDY, M. & PILLEMER, L. (1956). **Elevation of properdin levels in mice following administration of bacterial lipopolysaccharides.**—*J. exp. Med.* **103**, 823-833. [Abst. from authors' summary.] **3185**

Properdin levels in mice rose after a single administration of bacterial lipopolysaccharide,

the activity of which was higher than that of other substances studied. An early transient increase of resistance to non-specific infections was also observed. The assay of properdin was hampered by the appearance in the circulation of certain substances with high molecular weight. Small amounts of lipopolysaccharide at appropriate times before experimental infection will ensure normal or elevated levels during infection in contrast with control mice in which properdin declines progressively until death.

WRIGHT, G. PAYLING. (1956). **Experimental allergic lesions in animals.**—*Proc. R. Soc. Med.* **49**, 292-297. **3186**

A brief review of 3 experimental allergic conditions in laboratory animals that may possibly be related to similar conditions in man. The conditions described are: (1) the diffuse arteritis in rabbits that may follow injection of foreign proteins, (2) delayed acute encephalomyelitis produced by injection of emulsions or extractives of brain or spinal cord, and (3) acute glomerulonephritis that may be produced either by injection of a heterologous nephrotoxic serum, or by repeated injection of some antigens until the animal has become highly sensitized.

—W. E. PARISH.

See also absts. 3063-3064 (anthrax); 3065-3084 (TB.); 3104-3113 (brucellosis); 3117 (leptospirosis); 3118 (antigenic relationship between *E. monocytogenes* and *Staph. aureus*); 3140 (anaplasmosis); 3145-3148 (F. & M. disease); 3159 (bluetongue); 3170 (Newcastle disease); 3177 (formation of antibody following propagation of Newcastle disease virus in bovine mammary gland); 3181 (Q. fever antibodies in sheep); 3335 (report, United Nations).

PARASITES IN RELATION TO DISEASE [ARTHIPODS]

MARAŃSKI, C. (1956). Giez bydl'ecy. Uwagi i wnioski z przebiegu prawidłowego zwalczania na terenie bylej gminy Siennica pow. Mińsk. Maz. [Control of *Hypoderma bovis*.]—*Méd. vét., Varsovie*, **12**, 270-273. [In Polish.] **3187**

An account of an eradication experiment lasting 4 months, with 2,617 cattle in 36 villages. Records were kept of every animal, 509 (19.4%) of which were found affected in April, 1,460 (55.7%) in May and 1,598 (61%) in July. In some, especially the older ones, all "warbles" appeared within 1-2 months, in others they kept appearing throughout the 4 months. Two proprietary insecticides were used [composition not given] and good results were claimed.

—M. GITTER.

KNIPLING, E. F. & McDUFFIE, W. C. (1956). **Controlling flies on dairy cattle and in dairy barns.**—FAO/WHO Expert Committee on Milk Hygiene pp. 8. (WHO/Milk/hyg./4 and WHO/Insecticides/49.) **3188**

A summary of the recommended control measures in the U.S.A., against *Siphona irritans*, *Stomoxys calcitrans* and *Musca domestica*. Cattle may be treated with sprays, (emulsions or wettable powders) or dusts of methoxychlor at 0.5% concentration or of synergized pyrethrum or allethrin at 0.025 to 0.1% pyrethrins or allethrins and 0.25 to 1.0% of a pyrethrum synergist which gives better protection against *Stomoxys* and other biting flies. Buildings may be treated with methoxychlor, lindane, malathion, Chlorthion and Diazinon; but buildings housing cattle should not be treated with D.D.T., chlordane, B.H.C. or dieldrin. Housefly control may be intensified by use of poison baits and of cords impregnated with the organic phosphorus compounds. There are brief notes on the economic loss caused by some of these flies; hygiene; and use of self-treatment devices for cattle.—W. E. PARISH.

MARCH, R. B., FUKUTO, T. R., METCALF, R. L. & MAXON, M. G. (1956). **Fate of P³²-labeled**

malathion in the laying hen, white mouse, and American cockroach. — *J. econ. Ent.* **49**, 185-195. **3189**

Hens received P³² labelled malathion (1) in their mash, (2) by being sprayed with a 0.5% water emulsion and (3) by i/p injection. In group (1), 60% of the malathion was eliminated in 2 to 4 days and 75% in 5 to 6 days. In group (2) the maximum concentration in the faeces was about half that in group (1). The insecticide was poorly absorbed through the skin. In group (3), more than 50% was eliminated in 3 hours and almost the entire dose in 24 hours. The metabolism of the insecticide was studied in the fowl and also in mice and cockroaches. — JAS. G. O'SULLIVAN.

SNOWBALL, G. J. (1956). The effect of self-licking by cattle on infestations of cattle tick, *Boophilus microplus* (Canestrini). — *Aust. J. agric. Res.* **7**, 227-232. [Author's summary slightly modified.] **3190**

Infestations of *B. microplus* were established by applying single batches of larvae to stalled cattle, and the percentage yields of engorged female ticks from animals kept in harness to impede licking were compared with those from animals allowed to lick freely. In the harness trials, 33% of female ticks survived to fall as engorged adults from the host; in individual infestations this survival ranged from 5 to 69%. In the trials without harness the corresponding survival was 9%, ranging from 0.1 to 32%. Statistical analysis showed a highly significant effect of harness in promoting survival of ticks. Licking (and other forms of host behaviour, e.g. kicking and rubbing, which produce tick mortality by mechanical means), must be considered in any study of natural mechanisms regulating cattle tick populations.

LEGG, J. (1956). A test of two organic phosphorus compounds, Diazinon and Malathion, in the control of cattle tick in Queensland. — *Aust. vet. J.* **32**, 55-60. **3191**

All preparations were sprayed on the animals. Diazinon was completely effective at 0.05%. During hot, humid weather one application of 0.3% and, later in the year, 4 applications of 0.1% over a period of 24 hours, were not toxic to cattle. Malathion (1.25%) in the emulsion form could not be relied upon to destroy all ticks. The wettable powder appeared to be more reliable. Both diazinon and mala-

thion were as toxic to D.D.T.- and toxaphene-resistant ticks as to "standard" ticks.

The residual effect of both preparations was no more than 1-2 days. — M. D. MURRAY.

HANSENS, E. J. (1956). Chlordane-resistant brown dog ticks and their control. — *J. econ. Ent.* **49**, 281-283. **3192**

Rhipicephalus sanguineus, controlled for 4 years by chlordane, became resistant during the fifth year. Lindane was effective as a 0.25 and 0.5% spray or when used as a dip containing 0.045% lindane. — JAS. G. O'SULLIVAN.

PULLIN, J. W. (1956). Preliminary observations on the incidence, effect and control of chorioptic mange in dairy cattle. — *Canad. J. comp. Med.* **20**, 107-115. [French summary.] **3193**

Infestations of *Chorioptes bovis* appeared in herds after stabling, increased in intensity during the winter and spring months and disappeared during pasturage. The mite was found in the incrustations at the sides of the anal region. Lindane and benzyl benzoate emulsion were satisfactory for control during the stabling periods, but did not eradicate the mites.

— R. V. L. WALKER.

NEWTON, L. G. & O'SULLIVAN, P. J. (1956). A note on the occurrence of the mite *Cnemidocoptes pilae* on budgerigars in Queensland. — *Aust. vet. J.* **32**, 89-90. **3194**

Lesions were about the base of the beak, on the eyelids and the unfeathered parts of the face and legs. Benzene hexachloride and oil cured the birds. — M. D. MURRAY.

MACHIN, A. F. (1956). The depletion of insecticidal emulsions in contact with sheep fleece. — *J. Sci. Fd Agric.* **7**, 330-337. [Author's summary modified.] **3195**

The depletion and subsequent fate of insecticide and solvent from emulsions of B.H.C., D.D.T., dieldrin and aldrin in contact with sheep fleece under equilibrium conditions was studied. Depletion was essentially due to the grease associated with the fleece. There were marked differences between the depletion of B.H.C. and dieldrin on the one hand and D.D.T. and aldrin on the other; the mechanism of depletion was discussed with particular reference to these differences.

PARASITES IN RELATION TO DISEASE [HELMINTHS]

DORSMAN, W. (1956). A new technique for counting eggs of *Fasciola hepatica* in cattle faeces.—*J. Helminth.* **30**, 165-172. [Author's summary slightly modified.] 3196

The essential features of the method, which is described in detail, are a sieving technique to collect quantitatively the *F. hepatica* eggs of a sample of cattle faeces, a new technique for transferring quantitatively the eggs to a measured amount of water, and a new technique for obtaining even distribution of the eggs within a counting chamber. Technical details for manufacturing the apparatus and counting slide for the above method are given.

WEINBACH, E. C. & NOLAN, M. O. (1956). The effect of pentachlorophenol on the metabolism of the snail *Australorbis glabratus*.—*Exp. Parasit.* **5**, 276-284. [Authors' summary slightly modified.] 3197

Aerobic exposure of living snails to low concentrations (7.5×10^{-6} M, i.e., 2 p.p.m.) of pentachlorophenol resulted in the accumulation of acetate, lactate, pyruvate and inorganic phosphate in their tissues. In very low concentrations (2×10^{-6} M) it stimulated the respiration of living snails whilst higher concentrations (2×10^{-5} M) were inhibitory. Similar results were observed with minced snail tissues. These findings are discussed in relation to the hypothesis that the molluscicidal property of the drug is due, at least partially, to its ability to uncouple oxidative phosphorylation.

JOHRI, L. N. & SMYTH, J. D. (1956). A histochemical approach to the study of helminth morphology. — *Parasitology.* **46**, 107-116. 3198

Fixation and staining techniques are described to demonstrate the presence of polyphenol oxidase and phenols in eggs, vitellaria, ducts and uterus in whole mount preparations of trematodes and pseudophyllidean cestodes. Details are also given of methods of preparing whole mounts of large specimens prior to fixation, and of three protein staining techniques for sections.—W. E. PARISH.

GREGOIRE, C., GRANVILLE, A., POUPLARD, L., DEBERDT, A., SPRENGERS, R. & VILLANYI, J. (1956). La cysticercose bovine. Epidémiologie et diagnostic de la laderie. [Epidemiology and diagnosis of bovine cysticercosis.] — *Ann. Méd. vét.* **100**, 24-36. [In French.] 3199

A general review of the life cycle and transmission of *Taenia saginata*. There are notes of

the incidence of infestation, 1% in cattle and 0.1% in man, in Belgium and on the efficiency of diagnosis in the abattoir. Methods of dealing with infected carcasses are discussed with particular reference to those used in Belgium and the Belgian Congo.—W. E. PARISH.

PEISLEY, H. R. (1956). A survey on the incidence of echinococcosis in sheep.—*Aust. vet. J.* **32**, 61-62. 3200

A survey of the incidence of hydatid cysts (*Echinococcus granulosus*) in the lungs and liver of 4,041 adult sheep killed at the Canberra abattoirs showed 30% to be infected. The incidence of infestations on individual properties ranged from 7% to 78%. Sera tested by complement fixation gave positive titres in 37 of 41 infected sheep. The cysts found in 13 of these sheep were no greater than about 0.25 of an inch in diameter.—R. I. SOMMERVILLE.

PUCHOV, V. I., ZINICHENKO, I. I. & PAKHAR'KOV, A. G. (1956). [Methods for the eradication of *Coenurus* and *Echinococcus* of sheep.]—*Veterinariya, Moscow.* **33**, No. 4, pp. 31-34. [In Russian.] 3201

In two districts of the Stravropol region, all farm dogs were treated, at intervals of 45 days, with an acetone extract of male fern, which was more effective than an ether extract. After 3 years no further cases of *Echinococcus* or *Coenurus cerebralis* occurred in the sheep in these districts. Before the campaign commenced, annual losses from *Coenurus* averaged 4-20 per thousand head of sheep.—R.M.

HUNGERFORD, T. G. (1955). Hexachlorophene for the treatment of tapeworms in poultry.—*Aust. vet. J.* **31**, 275. 3202

Sixty to 100% of at least 50,000 fowls dosed with tablets containing hexachlorophene 50 mg., phenothiazine 500 mg. and nicotine 50 mg. were freed from tapeworm infestations (chiefly *Raillietina* spp.). The tablets depressed egg laying, and severe mortality resulted on one occasion from the combined effect of blackhead and the tablets, but healthy birds showed no untoward effects when given up to two tablets each.—R. I. SOMMERVILLE.

EDGAR, S. A. (1956). The removal of chicken tapeworms by di-n-butyl tin dilaurate.—*Poult. Sci.* **35**, 64-73. 3203

The following tapeworm species were effectively controlled, *Raillietina cesticillus*, *Choanotaenia infundibulum*, *Davainea proglottina*, and *Hymenolepis carioca*. The drug was used as a

premix at the rate of 500 mg. per kg. of food for 2-6 days, or as a single dose per bird of 75-125 mg. by capsule. There were no ill effects on the birds at this dosage level, but a drop in egg production was apparent when the dose was increased to 300 mg. Limited tests showed that dibutyl tin oxide was also effective but more toxic to the birds.—D. W. JOLLY.

POYNTER, D. (1956). Effect of a coliform organism (*Escherichia*) on the second ecdysis of nematode larvae parasitic in the horse.—*Nature, Lond.* **177**, 481-482. **3204**

Although infective larvae of the family Strongylidae parasitic in the horse shed their protective sheaths in equine duodenal contents, they did not do so in freshly prepared artificial duodenal contents. If, however, the artificial duodenal contents were inoculated with one of four different coliform organisms and incubated overnight, similar larvae shed their sheaths. It was also found that when larvae were placed in natural equine duodenal contents, which had been passed through a Seitz filter, only a few underwent ecdysis (9%) in 24 hours whereas in unfiltered contents 90-100% did so in that time. It is concluded that the presence of coliform organisms is essential for the normal second ecdysis of strongylid larvae from the horse.

—T. E. GIBSON.

GARKAVI, B. L. (1956). [Clinical picture of experimental *Strongyloides papillosus* infestation of lambs.] — *Veterinariya, Moscow*. **33**, No. 4, pp. 37-38. [In Russian.] **3205**

A brief account of *S. papillosus* infestation in 11 lambs, infected with 1-200 thousand larvae, given by mouth or placed on the skin. Four died between the 12th and 47th days after infection.—R.M.

GIBSON, T. E. (1956). A controlled test of tetrachlorethylene as an anthelmintic against *Trichostrongylus axei* in cattle.—*Vet. Rec.* **68**, 317-318. [Abstract from author's summary.] **3206**

Tetrachlorethylene was tested on 5 of 6 calves artificially infested with *T. axei*; the 6th calf was left untreated as a control. The calves were killed one week after treatment and counts of worms in the abomasum were made. The drug is considered variable in its action with 77% maximum efficiency. Alarming toxic symptoms were also observed and it was concluded that tetrachlorethylene is not a satisfactory anthelmintic for cattle.

SHUMARD, R. F., EMERICK, R. J., BEMRICK, W. E., HERRICK, C. A., POPE, A. L., &

PHILLIPS, P. H. (1956). Effects of trace minerals, dicalcium phosphate, phenothiazine, and combinations of these on the resistance of lambs to *Haemonchus contortus* and other nematodes.—*Amer. J. vet. Res.* **17**, 252-255. **3207**

Groups of lambs one month old at pasture were experimentally infested with *H. contortus*. Mineral salts were fed to all groups, but those containing phenothiazine and dicalcium phosphate were the most efficient in reducing the worm burden. Addition of phenothiazine alone or dicalcium phosphate alone were less effective, while those lambs given salts without either of these had a high mortality.—W. E. PARISH.

GORDON, H. McL. (1956). Tetrachlorethylene as an anthelmintic for sheep.—*Vet. Rec.* **68**, 271-272. **3208**

The anthelmintic effect of tetrachlorethylene against sheep nematodes, (*Haemonchus contortus* and *trichostrongyles*) is entirely dependent upon the entry of the drug into the abomasum. For this reason the use of tetrachlorethylene as a drench must be preceded by the administration of 10-20 ml. of a 5% solution of copper sulphate to stimulate the oesophageal groove reflex. A dose of 2-7.5 ml. of tetrachlorethylene in equal parts of liquid paraffin is recommended for sheep in Australia.

—D. W. JOLLY.

POOLE, J. B. (1956). Reaction to temperature by infective larvae of *Nematodirus filicollis*, *Trichostrongylidae* (Nematoda).—*Canad. J. comp. Med.* **20**, 169-172. [French summary.] **3209**

Third-stage infective larvae of *N. filicollis* tolerated a temperature range from -65°C. to 74°C. and survived from 50 to 60 days in water at an optimum temperature of 30°C. Moist larvae survived repeated freezing and thawing. There was a 22% survival of larvae after 22 weeks' storage at -6.5°C. The incubation period of ova was shortened by exposure to temperatures below 0°C. and it is postulated that this acted as a stimulus to development, indicating that the complete life-cycle is assisted by a "cooling stage."—R. V. L. WALKER.

TWOHY, D. W. (1956). The early migration and growth of *Nippostrongylus muris* in the rat.—*Amer. J. Hyg.* **63**, 165-185. **3210**

Larvae placed on the skin of rats required 11-15 hours to migrate to the lungs, and 50-60 hours to reach the alimentary tract. Penetration of the skin was followed by a change in the size of the larvae. A second period of growth took

place in the lungs where a moult was completed. There was no further change in size of the larvae until they reached the intestines, where the nematode attained maturity.—D. W. JOLLY.

RUBIN, R. & LUCKER, J. T. (1956). **The course and pathogenicity of initial infections with *Dictyocaulus viviparus*, the lungworm of cattle.**—*Amer. J. vet. Res.* **17**, 217-226. **3211**

Calves and yearlings were experimentally infected with *D. viviparus*. Clinical symptoms, changes in the blood, gross pathology, histopathology and effect on live weight gain are described. A single dose of 30,000 or more infective larvae was lethal, but a divided dose of 45,000 was not. When 750,000 larvae were administered as a single dose death took place after only 7½ days, before the worms had reached maturity; but with smaller lethal doses both mature and immature worms were recovered from animals which died 22 to 28 days after infection, indicating either a natural or a rapidly acquired resistance. *Pasteurella septicæ* was considered a possible factor in these deaths. All of the animals were susceptible to initial infection. The lengths of both the prepatent and the patent periods varied but there was no simple relationship to the size of the dose or the method of dosing. The total larval output of a single animal was estimated to be several millions.—J. H. ROSE.

GUTHRIE, J. E. (1956). **Critical tests with piperazine as an ascaricide in swine.**—*Vet. Med.* **51**, 235-238. **3212**

An assessment was made of the anthelmintic effect against *Ascaris lumbricoides* of piperazine hexahydrate, and piperazine sulphate administered in the drinking water. The medicated water was readily taken by the pigs, after they had been deprived of water for 24 hours. The results were assessed by counting the worms evacuated after the dosing, and those collected from the alimentary tract on P.M. examination, when the anthelmintic effect had ceased. Tests on 42 pigs indicated that a dose of 110 mg./kg. of piperazine eliminated 96% of the worms. No difference in the anthelmintic efficiency of the two piperazine compounds was observed.

—D. W. JOLLY.

BORG, U. (1956). Preliminära försök med piperazinadipat som medel mot spolmask och hakmask hos hundar. [Preliminary trials with piperazine adipate against ascarids and hookworms in dogs.]—*Medlemsbl. Sver. VetFörb.* **8**, 61-62 & 64. [In Swedish.] **3213**
In clinical trials in 70 young dogs infested

with ascarids and 12 with hookworms the drug was given in tablet form without previous fasting and without a purgative, its efficacy being assessed by parasitological examination of faeces at suitable intervals after treatment. Good results were obtained and symptoms of toxicity (vomiting) did not occur with divided dosage (100 mg./kg. daily for 3 days). For hookworms 150 mg. per kg. was necessary and a further treatment was usually required.

—F.E.W.

SPRENT, J. F. A. (1956). **The life history and development of *Toxocara cati* (Schränk 1788) in the domestic cat.**—*Parasitology*, **46**, 54-78. **3214**

A detailed description of the morphology and life history of *T. cati*. By a critical review of the literature S. establishes the priority of the name *Toxocara cati* in lieu of the commonly accepted synonyms *T. mystax* or *T. felis*. A revised synonymy is given.

Eggs were fed to a wide variety of animals and second stage larvae were found in the tissues of earthworms, cockroaches, fowls, mice, dogs, lambs and cats. Cats were infected by feeding the eggs, or by feeding mice harbouring the larvae in the tissues. In those cats infected by eggs, the larvae were found in the liver, lungs, muscles and tracheal washings in addition to the alimentary tract, indicating that there is a tissue migration. The prepatent period with this route of infection was 56 days. In those cats infected by feeding infected mice (which harboured the larvae in the liver, lungs and muscles) the larvae were mostly confined to the wall and contents of the digestive tract. No prenatal infection was found to occur in the litters of either naturally or experimentally infected cats.

There is a detailed description of each stage of the larvae in the cat, and of those differences which appear in the larvae in other hosts.—W. E. PARISH.

CUCKLER, A. C., EGERTON, J. R. & FOGG, D. E. (1956). **Anthelmintic activity of nicarbazin.**—*Fed. Proc.* **15**, 414-415. **3215**

The anticoccidial drug, Nicarbazin, fed to chickens at the concentration of 0.0125% in the food caused a 50% reduction in the number of ascarids (*Ascaridia galli*). It was also effective against pig ascarids at a conc. of 0.1% in the food.—D. W. JOLLY.

BICKNELL, S. R., CLABBY, J., DOWLING, M. A. C. & HUGHES, C. M. (1956). **An experiment in the control of canine filariasis.**

—J. R. Army vet. Cps. 27, 6-17. 3216

A marked reduction in the incidence of heartworm, (*Dirofilaria immitis*), in dogs in Singapore, was obtained by the control of the insect vector, identified as *Mansonia uniformis*. The larval stages, which develop on water plants, were killed by the application of Dieldrin

at the rate of 2 oz. per acre. The adults were controlled by a Dieldrin smoke applied to the kennels and adjacent buildings in the early morning when temperature inversion retarded the dispersion of the insecticidal smoke. The effects of these treatments applied once, were apparent for 26 weeks.—D. W. JOLLY.

See also absts. 3243 (diseases and parasites of chinchillas); 3330 (report, Union of S. Africa).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

TOYGARLI, S. A. (1956). Mitteilungen über sechs riesige, inoperable und drei mässig grosse zum Teil operable Melanosarkom-Fälle. [*Melanosarcoma in horses, a donkey and a mule: report of nine cases.*]—*Dtsch. tierärztl. Wschr.* 63, 175-177. 3217

Brief case reports, with some illustrations, are given of melanomas, some of which metastasized, in 7 horses (six grey, one brown), a donkey (right upper eyelid of a 10-year-old dark-brown animal) and a mule (anterior thoracic region of a 10-year-old white animal, with fatal pressure of an affected lymph node on the tracheal bifurcation).—E. COTCHIN.

FISCHER, W. (1956). Adenomatose und Krebsbildung bei chronischer Pneumonie des Meerschweinchens. [*Adenomatosis and carcinoma in chronic pneumonia in g. pigs.*]—*Zbl. allg. Path. path. Anat.* 94, 555-562. 3218

F. examined 76 g. pigs with chronic pneumonia caused either by a yeast (*Oidium* sp.) or by an unidentified virus. Apart from the lesions of pneumonia, adenomatous or carcinomatous lesions were present in the lungs of 16 out of 46 of the animals. He discussed the relationship between pneumonia and neoplasms.—R.M.

NELSON, J. B. (1956). An ascites tumor appearing during the passage of *Eperythrozoon coccoides* in mice.—*J. exp. Med.* 103, 743-752. [Abst. from author's summary.] 3219

During the 39th passage in mice of *E. coccoides* by intraperitoneal inj. of infected blood, marked ascites with a high content of neoplastic cells occurred. This fluid, which also contained eperythrozoon, caused ascites and early death on injection into other mice. After further passage of fluid and blood, the tumour cells as well as the eperythrozoon were obtained in a pure state. The former were not influenced by the latter which, in turn, appeared to grow better in the presence of the former. The tumour retained its characteristics throughout

50 passages. The appearance of tumour cells in the blood was irregular after i/p inj.; solid, invasive local growths appeared after s/c and after i/m inj. These growths were transferable in series; after 20 passages their cells still produced ascites tumours on i/p injection.

I. GÖTZE, R., ROSENBERGER, G. & ZIEGENHAGEN, G. (1956). Über Ursachen und Bekämpfung der Rinderleukose. IV. Übertragbarkeit. [*Aetiology and control of bovine leucosis. IV. Transmissibility.*]—*Dtsch. tierärztl. Wschr.* 63, 105-108. 3220

II. GÖTZE, R., ROSENBERGER, G. & ZIEGENHAGEN, G. (1956). Über Ursachen und Bekämpfung der Rinderleukose. V. Übertragungswege und Bekämpfungsvorschlag. [*Aetiology and control of bovine leucosis. V. Modes of transmission and suggestions for control.*]—*Ibid.* 112-125. [For previous parts, see *V. B.* 24, 162; 26, 1336 & 2654.] 3221

I. Evidence of the transmissibility of bovine leucosis was as follows:—the gradual spread of the disease in Germany from East to West; transmission from farm to farm by the movement of infected cattle; absence of the disease on two farms after all cattle were slaughtered and fresh stock introduced; and the results of transmission experiments. In the latter, 17 young cattle and 2 cows were inoculated by various routes with blood, milk and tissues from infected animals. After 5 years 7 were leucaemic and 3 had tumour-like leucotic nodules; in 3 the blood picture was slightly changed, and the remaining 6 were healthy. Further evidence was the success of control measures based on the segregation of blood-positive cattle. The incubation period, from the time of infection to the appearance of leucaemic changes in the blood, varied from 2 weeks to several months.

II. This paper concludes the author's series on bovine leucosis. Placental transmission of the disease was proved in two cases.

Transmission by contact, by infected milk, or by infected hypodermic syringes and surgical instruments were possibilities that must be taken into account, although there was not yet definite evidence of these modes of transmission occurring in cattle.

For the control of leucosis in badly affected herds, the slaughter of all animals and their replacement by clinically and haematologically normal stock was recommended. In less badly affected herds, the affected cattle should be segregated from the healthy cattle, and should be slaughtered when opportunity permitted. Affected stock should not be used for breeding. An annual clinical and haematological examination of all herds would serve to detect fresh cases or outbreaks.—R.M.

GÖTZE, R. (1956). Über Ursachen und Bekämpfung der Leukose des Rindes. [**Causes and control of bovine leucosis.**] — *Mh. VetMed.* **11**, 169-173. **3222**

A shortened account of the work previously abstracted [see preceding abst.].—R.M.

See also absts. 3170 (transmission of visceral lymphomatosis by Newcastle disease vaccine); 3330 (report, Union of S. Africa); 3336 (book, cancer in man and animals).

NUTRITIONAL AND METABOLIC DISORDERS

MORTON, R. K. (1955). Some properties of alkaline phosphatase of cow's milk and calf intestinal mucosa.—*Biochem. J.* **60**, 573-582. **3224**

The physical and chemical properties of the enzymes were studied. In the purified form both are colourless, unconjugated proteins free from organic phosphorus, nucleotides or related compounds; they may contain small amounts of carbohydrate and their tyrosine and tryptophane contents are similar; their activity/pH relationships are different. Activity is greatest with magnesium chloride and is inhibited by beryllium and zinc salts. The effects of pre-incubation with alanine and magnesium, and of alanine and other amino-acids on the activity of the enzymes are discussed.—T.E.G.R.

TAKETA, F., CONSTANT, M. A., PERDUE, H. S. & PHILLIPS, P. H. (1956). Maternal diet and resistance to dental caries in the cotton rat.—*J. Nutr.* **58**, 519-527. **3225**

Post-weaning diet was of greater importance than maternal diet in inducing dental caries in young rats.—M.G.G.

BARRENTINE, B. F., SHAWVER, C. B. & WILLIAMS, L. W. (1956). Antibiotics for the

BURMESTER, B. R. & GENTRY, R. F. (1956). The response of susceptible chickens to graded doses of the virus of visceral lymphomatosis.—*Poult. Sci.* **35**, 17-26. **3223**

Graded doses (designated titrations 1-4) of an inoculum containing tumour strain R.P.L. 12 virus were given intraperitoneally to chicks of a susceptible strain. The birds were held for an experimental period of 200 days. Deaths from visceral lymphomatosis began as early as 22 days after inoculation. The incidence ranged from 55.5% in the low dosage group to 90.1% in the high dosage group and in these two lots the average age at death was 128.2 and 55.6 days, respectively. The incidence of visceral lymphomatosis increased with increasing dosage up to titration 3 and thereafter the incidence levelled out.

All the cases of visceral lymphomatosis could be classified as intravascular or extravascular depending on the location of the neoplastic cells. The former type increased as the dosage of virus increased while the incidence of the latter was inversely related to the virus dosage.

—D. LUKE.

prevention of bloat in cattle grazing Ladino clover. — *J. Anim. Sci.* **15**, 440-446. [Authors' summary modified.] **3226**

Penicillin was the only antibiotic studied that prevented bloat when a single oral dose of 300 mg. or less was given. In yearling steers single oral doses of 25 mg. of procaine penicillin gave good protection and 50 mg. afforded protection in every case for 1.5- to 3-day periods. Older steers, weighing about 900 lb. required 50 to 75 mg. Clover consumption appeared to be slightly higher after penicillin treatment than before. Potassium penicillin, in equivalent amounts, was as effective. The nature of the procaine penicillin carrier and the concentration of the penicillin in the carrier appeared to have no effect.

CARNAGHAN, R. B. A. & MARKSON, L. M. (1956).—Studies on encephalomalacia in poultry. I. The incidence in England and Wales.—*Brit. vet. J.* **112**, 140-144. **3227**

This report is based on the detailed study of poultry specimens received at the Veterinary Laboratory, Weybridge, from outbreaks in which there had been a history of nervous symptoms. Over a period of two years encephalomalacia was diagnosed in 1.6% and 1.5%.

respectively, of all batches of chicks received. The incidence in flocks varied from isolated cases to 36%, the average being 5%. Of 69 outbreaks studied only 3 were associated with the feeding of additional cod-liver oil. The remainder occurred in flocks which had received proprietary chick foods. The majority of cases occurred in Light Sussex and in Light Sussex Crosses.—D. LUKE.

I. FÉVRIER, R. & VACHEL, J. P. (1955). Les antibiotiques et la croissance du porc. I. Implantation de bacitracine sur le porcelet allaité. II. Adjonction de pénicilline et d'aureomycine à un régime dépourvu de protéines animales. [**Antibiotics and growth in pigs. I. Implantation of bacitracin in unweaned piglets. II. Addition of penicillin and aureomycin to a diet poor in animal protein.**]—*Ann. Inst. nat. Rech. agron., Paris*. Ser. D. 4, 133-135 & 136-138. 3228

II. FÉVRIER, R., VACHEL, J. P. & MICHEL, M. (1955). Les antibiotiques et la croissance du porc. III. Stockage des antibiotiques dans les organes et les tissus. IV. Destruction des antibiotiques dans le tube digestif. V. Teneur en vitamine B₁₂ du foie et du contenu de l'intestin. [**Antibiotics and growth in pigs. III. Storage of antibiotics in organs and tissues. IV. Destruction of antibiotics in the digestive tract. V. Vitamin B₁₂ content of the liver and intestinal contents.**]—*Ibid.* 139-143; 144-145 & 146-149. 3229

III. FÉVRIER, R. & VACHEL, J. P. (1955). Les antibiotiques et la croissance du porc. VI. Influence de l'aureomycine et la pénicilline sur la digestibilité de la ration. [**Antibiotics and growth in pigs. VI. Influence of aureomycin and penicillin on the digestibility of the ration.**]—*Ibid.* 150-152. 3230

IV. SALMON LEGAGNEUR, E. & MICHEL, M. (1955). Les antibiotiques et la croissance du porc. VII. Action des antibiotiques sur porcelets allaités. [**Antibiotics and growth in pigs. VII. Action of antibiotics on unweaned piglets.**]—*Ibid.* 153-163. 3231

I-IV. This series of papers reports experiments on the action of penicillin, aureomycin and to a lesser extent bacitracin and chloramphenicol on the growth rate of pigs. The results largely confirm those of other authors.—R.M.

CUMMING, R. B. & TRIBE, D. E. (1956). The effect of floor type and the choline content of the diet upon the incidence of perosis in chickens.—*J. agric. Sci.* 47, 103-106. 3232

The incidence of perosis was higher among chicks reared on wire-mesh floors than among

those on wooden floors; it was about 60% when the dietary choline was 500 mg./kg. and dropped to a minimum of 15% when the choline was increased to 800 mg./kg. Neither floor space nor the manganese content of the diet had any influence.—T.E.G.R.

BALBIERZ, H. C. (1955). Badania nad poziomem hemoglobiny i erytrocytów u prosiąt osesków przy podawaniu mieszanki mineralnej. [**Haemoglobin values and erythrocyte counts in piglets fed mineral supplements.**]—*Weterynaria, Wroclaw*, 1, 117-133. [In Polish. English and Russian summaries.] 3233

Six unweaned piglets of a litter of 11 were given by mouth a mineral mixture consisting of iron, copper and magnesium, once daily from the 14th till the 50th day of life. R.b.c. counts and Hb estimations were carried out every 5th day. At first the Hb levels and the number of r.b.c. started to go down till the lowest levels were reached on the 18th day of life in the experimental piglets and on the 23rd in the controls. The fall in the control group was always greater. After the 18th and 23rd days respectively the Hb and r.b.c. values began to rise again, the experimental animals being always on a higher level. At the end of the experiment the following data were obtained: experimental pigs—Hb 14.54 g.%, r.b.c. 6,165 million per cu. cm.; controls—Hb 9.61 g.%, r.b.c. 4,616 million.—M. GITTER.

MILLS, C. F. (1956). The dietary availability of copper in the form of naturally occurring organic complexes.—*Biochem. J.* 63, 190-193. [Abst. from author's summary.] 3234

In experiments on rats it was observed that the copper available in aqueous extracts of herbage after removal of the Cu²⁺ ion was more rapidly metabolized and a greater quantity of it was stored in the liver than if equivalent amounts of Cu²⁺ ion had been fed. This is considered to be the result of the copper passing through the intestinal mucosa in the form of stable, soluble complexes.

NERURKAR, M. K. & SAHASRABUDHE, M. B. (1956). Metabolism of calcium, phosphorus and nitrogen in hypervitaminosis A in young rats.—*Biochem. J.* 63, 344-349. [Abst. from authors' summary.] 3235

Administration of 400 times the normal requirement of vitamin A was followed by a reduced food intake, loss of weight, fractures and haemorrhages. (These symptoms varied according to the dose given). There was an

increased catabolism of calcium, phosphorus and nitrogen; this persisted long after administration of the vitamin was discontinued. The levels of calcium and inorganic phosphorus in the blood were unaffected and there was little change in the mineral composition of the bones. The amounts of vitamin A found in the liver led to the conclusion that the rate of absorption from the intestine falls as the intake exceeds the normal requirement.

AMES, S. R. (1956). **Role of vitamin E (α -tocopherol) in poultry nutrition and disease. A review of recent literature.**—*Poult. Sci.* **35**, 145-159. **3236**

A comprehensive, but not quite complete résumé of the voluminous literature on the subject. There is a long and useful table of the α -tocopherol content of various foodstuffs. The author could with advantage have been more critical in the part dealing with diseases which appear to be linked with vitamin E metabolism.—L. M. MARKSON.

ALLEN, S. H. (1956). **The effects of vitamin B₁₂ deficiency and of copper deficiency on the concentration of free protoporphyrin in the erythrocytes of sheep.**—*Biochem. J.* **63**, 461-469. [Author's summary modified.] **3237**

In normal sheep the concentration of free protoporphyrin in the red blood cells falls within the range 31-89 $\mu\text{g.}/100$ ml. of r.b.c.; the average of 110 determinations was close to 50 $\mu\text{g.}/100$ ml. of r.b.c. In vitamin B₁₂-deficient sheep the conc. of free protoporphyrin in the r.b.c. is invariably much higher than normal: it increases more or less steadily as the anaemia develops and may, in the terminal stages, reach concentrations up to 500 $\mu\text{g.}/100$ ml. of r.b.c. During re-establishment of a normal vitamin B₁₂ status, by appropriate treatment, these abnormally high concentrations gradually return to normal as the regeneration of haemoglobin proceeds. Concurrently with these high concentrations of free protoporphyrin in the r.b.c., the concentrations of iron in the plasma are normal or higher than normal.

In copper-deficient sheep the conc. of free protoporphyrin in the r.b.c. is much higher than normal: in the series of animals studied, concentrations ranging from 107 to 310 $\mu\text{g.}/100$ ml. of r.b.c., with an av. of 170 $\mu\text{g.}/100$ ml. of r.b.c., were observed. Concurrently with high conc. of free protoporphyrin in the r.b.c. the conc. of iron in the plasma is abnormally low. Coproporphyrin was not detected in the r.b.c. of either normal or vitamin B₁₂-deficient sheep.

CARDASSIS, J. (1955). **[Diagnosis of ketosis in milch cows by the Lestradet test.]—Delt. Hellen. kten. Hetair.** **2**, 902-910. [In Greek. Abst. from French summary.] **3238**

The addition of a drop or two of suspect urine, serum, plasma, blood or milk to Lestradet's reagent (sodium nitroprusside one part, and 200 parts each of sodium carbonate and anhydrous ammonium sulphate) will produce a violet colour, the intensity of which varies according to the degree of ketosis. Repeated tests provide a guide to the severity, the course of the condition, and its response to treatment.

—T.E.G.R.

MARSHAK, R. R. (1956). **Studies on parturient paresis in dairy cows with particular reference to udder insufflation.**—*J. Amer. vet. med. Ass.* **128**, 423-431. **3239**

In a limited study, chemical analysis of the serum and colostrum, haematocrit values and electrophoretic studies of the plasma proteins of affected cows were reported before and after udder insufflation. The calcium and inorganic phosphorus content of the serum before insufflation was low. Clin. symptoms developed when the calcium content fell below 8 mg./100 ml. After insufflation there was a rise in the calcium and inorganic phosphorus content of the serum and a decline in that of the colostrum. The protein content of the serum of affected cows was similar to that of healthy parturient cows. The findings were discussed with reference to previous literature.—M.G.G.

CLARK, R. & WEISS, K. E. (1955). **Carbohydrate metabolism in ruminants with special reference to ketosis.**—*J. S. Afr. vet. med. Ass.* **26**, 217-220. **3240**

The basic facts concerning carbohydrate metabolism are reviewed. Carbohydrates are mainly absorbed as lower fatty acids, the end products of fermentation being acetic acid (67%), propionic acid (19%) and butyric acid (14%). Blood glucose is converted into pyruvic acid which produces acetic acid from which ketones arise. Butyrate, dosed into the rumen, causes a sharp rise in blood ketones and a drop in blood sugar. Propionate has the opposite effect. Hypoglycaemia and ketonaemia may, therefore, be caused either by: (a) a deficiency of propionic acid or (b) an excess of butyric over propionic acid. In experiments on sheep a sudden reduction in the protein intake caused a rise in butyric acid and a fall in propionic acid production; a sudden increase in the protein

intake had the reverse effect. These results and the hormonal control of carbohydrate metabolism are discussed.—T.E.G.R.

CLARK, R. & MALAN, J. R. (1956). **Alterations in the blood sugar and ketone levels caused by dosing acetate, propionate and butyrate into the rumen of the sheep.**—*Onderstepoort J. vet. Res.* **27**, 101-109. [Authors' summary modified.] **3241**

Acetate caused a slight and delayed rise in ketone bodies without affecting the blood sugar. Propionate caused a marked rise in blood sugar and had a strong anti-ketogenic effect when given with butyrate. Butyrate produced a sharp rise in ketones, mainly β -hydroxybutyric acid, together with a fall in blood sugar. The latter effect was not, however,

constant. I/v injection of β -hydroxybutyric acid reduced the blood sugar level. Aceto-acetic acid injected i/v was partially converted to β -hydroxybutyric acid. These results are discussed in relation to the more recent literature.

ROSENBERGER, G. & DIRKSEN, G. (1956). **Erfahrungen mit der ACTH-Behandlung der Acetonurie des Rindes. [A.C.T.H. in the treatment of ketosis in cattle.]**—*Dtsch. tierärztl. Wschr.* **63**, 235-237. **3242**

The successful treatment of ketosis in 42 cattle was described; 31 were cured by adrenocorticotrophic hormone alone. For general practice the authors recommend 1 or 2 i/m injections of 100 i.u. of A.C.T.H., in combination with 50 g. daily of sodium propionate given orally for a few days.—M.G.G.

DISEASES, GENERAL

GORHAM, J. R. & FARRELL, K. (1956). **Diseases and parasites of chinchillas.**—*Proc. 92nd Ann. Meet. Amer. vet. med. Ass.* 1955. 228-234. **3243**

A review article dealing with the common affections of chinchillas, with details of symptoms; lesions, transmission and treatment.

—M.G.G.

NEUMANN, H. -J. (1956). **Der Geflügelgesundheitsdienst in Schleswig-Holstein 1949 bis 1953; zugleich ein Beitrag zur Statistik der Geflügelkrankheiten. [Poultry disease statistics, Schleswig Holstein 1949-53.]**—*Berl. Münch. tierärztl. Wschr.* **69**, 86-89. [English summary.] **3244**

Although pullorum disease is still the most common disease of poultry in Schleswig-Holstein, the incidence was declining steadily over the four-year period in question because of the increasing use which is being made of serological diagnosis and the elimination of reactors. Leucosis is the second most common disease and shows an alarming increase during this 5-year period. Helminthiasis and faulty husbandry account for over 20% of the total losses.—W. G. SILLER.

HOWARTH, J. A., MOULTON, J. E. & FRAZIER, L. M. (1956). **Epizootic bovine abortion characterized by fetal hepatopathy.**—*J. Amer. vet. med. Ass.* **128**, 441-449. **3245**

An epizootic type of abortion affected cows of all ages on its first occurrence but, once established in a herd, it was limited to first-calf heifers between the 6th and the 8th month of pregnancy. The highest incidence was during

July—October. Serological, bacteriological and animal inoculation tests failed to reveal the cause. Pathological changes in aborted foetuses included subcutaneous oedema, ascites, generalized haemorrhages and a swollen, friable liver with nodules on the surface.—T.E.G.R.

I. FORMSTON, C. (1956). **A spastic form of lameness in Friesian calves.**—*Brit. Friesian J.* **38**, 67-68. **3246**

II. KÖPPE, A. (1956). **A spastic form of lameness in Friesian calves.**—*Ibid.* 214-216. **3247**

I. F. describes a form of hind leg lameness in calves known as "contraction of the Achilles tendon" or "Elso-heel," mainly confined to Friesian cattle but occasionally found in the Brown Swiss breed. The condition appears as an abnormal degree of straightness or over-extension of the hock due to rigidity and ultimate contraction of the Achilles tendon. The defect may be detected in the first few weeks of life, but lameness may not occur until the animal is 3-5 months old. Difficulty in movement results in rapid loss of condition. The defect is believed to be hereditary, the term "Elso-heel" referring to a particular affected bull, "Elso II."

II. K. maintains that lameness or spastic paralysis of the hind quarters is a different condition from "Elso-heel," the latter term referring solely to an undue straightness of the hocks which has been bred out. Notes on the Elso pedigree and conformation are given.

—W. E. PARISH.

RENWICK, C. C. & BOWDEN, R. S. T. (1956). **A transmissible anaemia of cattle and other**

livestock in Malaya. (A complex syndrome coded "R" disease.)—*J. Malay. vet. med. Ass.* 1, 32-41. 3248

A disease of Malayan cattle is described [see also *V.B.* 25, 1724]. It is characterized by anaemia and prolonged wasting, sometimes with depressed plaque formation on the skin. It is believed that the disease is not of nutritional or parasitological origin; recently it has been experimentally reproduced by the inoculation into calves of blood from an affected bull.

—J. SEAMER.

SCHAAF, J. & BEERWERTH, W. (1956). Reaktion von Rindern auf Rinder-, Geflügel- und Paratuberkulin im Verlaufe der Dermatitis nodosa infectiosa. [Reaction of cattle to bovine tuberculin, avian tuberculin and johnin during the course of "skin tuberculosis".] — *Rindertuberkulose*. 5, [No. 4.] 103-110. 3249

Cattle with "skin tuberculosis" usually react more markedly to bovine than to avian tuberculin or to johnin. After a time the reaction diminishes, especially with avian tuberculin, and by the third year of infection a quarter of the animals may be negative to tuberculin. Negative reactions can occur in animals that are still infected and such animals should not be exposed in markets as tuberculin negative until they are clinically cured. 208 infected cattle were studied.—E. G. WHITE.

THIEME, E. (1955). Weitere Ergebnisse zur Ursachenforschung des sog. Herztodes. [New developments in the aetiology of fatal syncope.] — *Arch. exp. VetMed.* 9, 405-411. 3250

Nervous symptoms, and lesions of the heart muscle and thyroid gland similar to those found in pigs dead from "fatal syncope," were reproduced in pigs by the oral administration of potassium carbonate or chlorate, with or without injections of insulin, and also by the administration of methylthiouracil combined with insulin injections.—R.M.

HOLZWORTH, J. (1956). Anemia in the cat.—*J. Amer. vet. med. Ass.* 128, 471-488. 3251

In a period of five years 120 anaemic cats have been studied at a Boston clinic. The anaemias have been classified according to cause: infections accounted for the greatest number of cases. H. considers that the examination of blood smears is a practical and worthwhile aid to diagnosis. Smears from a variety of conditions are illustrated. The value of blood transfusion in anaemic cats is stressed.

—JOHN SEAMER.

MARTIN, L. A. & HINTERMANN, J. (1955). Une maladie non decrite du chat: la myelite infectieuse. [Infectious myelitis in cats.]—*Arch. Inst. Pasteur Maroc*. 5, 64-73. [English summary.] 3252

The disease affects cats of both sexes and of any age. It is characterized by paralysis of the hind legs and may occur in a peracute, acute, chronic or even inapparent form. Mortality is high in the first two forms. P.M. findings are mainly limited to lesions of the spinal cord which are considered to resemble those seen in human poliomyelitis. The causal agent has not yet been identified.—T.E.G.R.

STEARNER, S. P., SANDERSON, M., CHRISTIAN, E. J. & BRUES, A. M. (1956). Initial radiation syndrome in the adult chicken.—*Amer. J. Physiol.* 184, 134-140. 3253

A slight fall in blood pressure was observed 30-60 min. after exposure, causing hypotension which was severe in chicks but not in adults. Renal function was not affected in adults (possibly owing to the kidney epithelium being more resistant) and histopathological changes were negligible.—T.E.G.R.

BERGER, H. -J. (1956). Die Gallenfarbstoffe im Harn der Haustiere. [Bile pigments in the urine in domestic animals.] — *Zbl. VetMed.* 3, 265-272. [English, French and Spanish summaries. English summary modified.] 3254

The urine of herbivora, like that of man and of dogs, normally contains stercobilin only and no urobilin. In diseased dogs the urine contains, in addition, urobilin and bilirubin. The causation of the bilirubinaemia calls for further study.

MORE, R. H. & CROWSON, C. N. (1955). Glomerulotubular nephrosis correlated with hepatic lesions. I. A morphologic investigation of the changes of progressive autolysis in human, rabbit, and rat tissues. — *Arch. Path.* 60, 63-72. 3255

A critical study of the P.M. histological changes taking place in the kidney of the rabbit, rat and man, and the liver of rat and man, under standardized conditions. In rabbit and man autolytic renal changes commenced after 3 hours, when in the proximal convoluted tubules there was a cytokaryolysis, and in the remainder of the nephron a progressive acidophilic density of the cytoplasm and pyknosis of the nuclei. If changes that had occurred

before death were present in the control sections they could be traced throughout the periods of autolysis.

In the liver it was not easy to distinguish between P.M. changes and those which had taken place before death. At first the nucleus

and cytoplasm of the parenchymal cells became pale and indistinct, but later the cytoplasm increased in density. The diphasic nature of the changes of the hepatic cord cell appears to be related to the glycogen content of the cell.

—W. E. PARISH.

POISONS AND POISONING

BOHOSIEWICZ, M. (1955). Rozważania nad zatruciami zwierząt domowych w Polsce w latach 1951-1953. [Poisoning in domestic animals in Poland during the period 1951-53.]—*Weterynaria, Wrocław*. 1, 135-144. [In Polish. English and Russian summaries.] 3256

In B.'s experience the most commonly encountered poisonings were, in order of frequency, due to zinc phosphide, arsenical compounds, and sodium chloride. Among the miscellaneous chemical compounds were nitrogenous and potash fertilizers, Pb, KCN, Cu, Hg, ZnO, CaCl₂, and phenol. In most cases the outbreaks were caused by careless handling of these compounds, lack of appropriate labels, pest eradication, and on several occasions by malicious intent. Plant and fodder poisonings were less common and affected mainly cattle: in order of frequency they were due to yew, water hemlock, spotted hemlock, autumn crocus; in horses, to buttercups; in sheep, to plants of the Order Cruciferae. *Ricinus communis* poisoning in horses and pigs was also encountered. Lupin caused several outbreaks of poisoning in horses, cattle, pigs and sheep. Despite a lower total incidence of outbreaks, the incidence of arsenical poisoning had risen and outbreaks usually involved a large number of animals.—M. GITTER.

SCHULZE, W. & BENTZ, (1956). Vergiftungen bei Schafen. [Poisoning in sheep.]—*Dtsch. tierärztl. Wschr.* 63, 185-187. 3257

Out of 1,355 cases of poisoning examined only 4% were in sheep and only a quarter of these were definitely confirmed. The two commonest poisons were zinc phosphide and arsenic; contact insecticides containing D.D.T., common salt, fertilizer, phenothiazine and copper were also responsible for poisoning sheep.—J. A. NICHOLSON.

STONER, H. B. (1956). The mechanism of toxic hepatic necrosis.—*Brit. J. exp. Path.* 37, 176-198. 3258

Changes in the liver temperature and blood flow of the rat during toxic hepatic necrosis were measured by internal calorimetry. From

studies of necrosis caused by dimethylnitrosamine, carbon tetrachloride, sodium fluoroacetate, beryllium sulphate and allyl formate, it is concluded that the condition is not due to a diminished blood supply but to direct action of the toxin on cell metabolism.—T.E.G.R.

BARNETT, A. J. G. & BOWMAN, I. B. R. (1956). Studies on the reduction of nitrate in the artificial rumen in the presence of various substances.—*Biochem. J.* 63, No. 2. pp. 15P-16P. of Proceedings. 3259

It was found that when potassium nitrate was added to artificial rumen contents, nitrite formation was most vigorous when dried grass or grass pigments containing potential hydrogen donors were present. Cellulose decreased nitrite production and no nitrite was detectable in the rumen containing glucose, although the nitrate disappeared.—J. A. NICHOLSON.

MCCONNELL, J. D. & BARNES, J. E. (1956). The toxicity of the fruits of *Atalaya hemiglauca* ("Whitewood") for horses.—*Aust. vet. J.* 32, 74-76. 3260

Fruits of the whitewood tree (*A. hemiglauca*) were fed to horses in three dosage rates; 8 lb. in 11 days, 15 to 26 oz. in 3 to 6 days, and $\frac{1}{2}$ oz. daily for 174 days. Toxic effects and deaths occurred at all levels. At the higher dosage rates symptoms comprised anorexia, depression, abdominal pain, muscle fibrillation and weakness. At the lower dosage rate chronic diarrhoea, oliguria, icterus and muscle stiffness also occurred. P.M., haemorrhages varying from petechiae to large extravasations were found constantly. Considerable liver necrosis and gastro-enteritis occurred. Myositis was pronounced in chronic cases. In spite of these findings the authors concluded that under natural conditions the fruits are unlikely to cause much damage because of their unpalatability.—D. C. BLOOD.

JENSEN, R., DEEM, A. W. & KNAUS, D. (1956). Fescue lameness in cattle. I. Experimental production of the disease.—*Amer. J. vet. Res.* 17, 196-201. [Abst. from authors' summary.] 3261

MAAG, D. D. & TOBISKA, J. W. (1956). Fescue lameness in cattle. II. Ergot alkaloids in tall fescue grass.—*Ibid.* 202-204. [Abst. from authors' summary.] 3262

I. Dry gangrene of the hind feet and, less often, of the fore feet and of the tip of the tail occurred in cattle grazed on tall fescue grass, *Festuca elatior* var. *arundinacea*, or fed tall fescue grass hay exclusively. Control animals fed grass which contained no fescue remained normal.

II. Chemical analysis of tall fescue grass revealed alkaloids, similar to those present in ergot, but no selenium.

PRITCHARD, W. R. (1956). Laurel (*Kalmia angustifolia*) poisoning of sheep.—*N. Amer.*

Vet. 37, 461-462. [Author's summary modified.] 3263

Twenty-two of a flock of 50 sheep died from poisoning. Fatal poisoning was produced experimentally by feeding powdered laurel leaves to two adult sheep.

MARKSON, L. M. (1956). On failing to poison chickens with *Senecio squalidus*, L.—*Vet. Rec.* 68, 333-334. [Author's summary modified.] 3264

Over a period of one month, 10 cockerels were maintained on a diet containing 10% dry weight of ground *S. squalidus*. Each must have eaten upwards of 1 lb. of the dried weed. All survived without any evidence of disease.

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease).

WASSERMAN, R. H., TRUM, B. F., MONROE, R. A., LANE, J. J. & COMAR, C. L. (1956). Studies on depression of radioiodine uptake by the thyroid after phenothiazine administration. I. Investigations of the factors in phenothiazine N.F. responsible for the thyroidal effects.—*Amer. J. vet. Res.* 17, 149-152. 3265

The principal factor responsible appears to be the iodide ion. The mechanism of its action was by dilution of the isotope or saturation of the thyroid by the iodide. In certain preparations of phenothiazine another factor in addition to the iodide causes depression of thyroid uptake of radioactive iodine. This factor is, however, much less potent than the iodide.

—T. E. GIBSON.

I. WILKINS, J. R., LEWIS, C. & BARBIERS, A. R. (1956). Streptonivcin, a new antibiotic. III. *In vitro* and *in vivo* evaluation.—*Antibiot. & Chemother.* 6, 149-156. [Spanish summary p. 179. Abst. from authors' summary.] 3266

II. TAYLOR, R. M., MILLER, W. L. & VANDER BROOK, M. J. (1956). Streptonivcin, a new antibiotic. V. Absorption, distribution and excretion.—*Ibid.* 162-170. [Spanish summary p. 180. Abst. from authors' summary and conclusions.] 3267

I. Streptonivcin [novobiocin], *in vitro* inhibited many Gram-positive and a few Gram-negative organisms; its action against coliform and enteric organisms varied according to the strain. In mouse-protection tests it was effective against *Staph. aureus*, *Past. septica* and *Proteus vulgaris*; moderately so against *Str.*

pyogenes and *Str. pneumoniae*, and ineffective against *S. typhi*, *S. paratyphi B.* and *Ps. pyocyanea*. It acted in a variety of media with an optimum pH near neutral. It was bactericidal against *Staph. aureus* in concentrations 10 times the minimal inhibitory concentration; resistance developed but no cross resistance with other antibiotics was observed.

II. The antibiotic was tested in dogs, mice and human beings. High, maintained serum levels were attained in man and dogs 2-4 hours after oral administration. In mice the levels attained were lower and the peak was reached within an hour. In dogs the concentration achieved by oral administration was intermediate between those following intravenous and intramuscular administration. There was wide distribution in the body tissues and fluids of dogs after oral administration. The amount found in the liver and large intestine was somewhat higher than in other tissues while in the bile it was about 16 times that found in the serum and urine. About one third of the drug was excreted with the faeces during 24 hours and about one hundredth excreted with the urine in 48 hours.

BROOK, A. H. & PARIS, R. (1956). Observations on serum chloramphenicol ("chloromycetin") levels in horses.—*Aust. vet. J.* 32, 69-73. 3268

Chloramphenicol was administered to horses by various routes and in dosage rates of 15 to 33 mg./kg. body wt. Single doses by stomach tube gave peak serum levels at about one hour and no detectable levels at 4-5 hours. Multiple doses by stomach tube at 4-hour intervals

resulted in lower peak serum levels with successive doses. When the drug was administered in gelatin capsules similar results were obtained though peak serum levels occurred slightly later. Intramuscular injections in normal saline at dosage rates of 4.5 and 16.5 mg./kg. body wt. gave no detectable serum levels.

—D. C. BLOOD:

WEAVER, B. M. Q. (1956). A report on the use of chlorpromazine hydrochloride for premedication in the dog. — *Vet. Rec.* **68**, 347-350. [Author's summary modified.] **3269**

Chlorpromazine has been given as a pre-anaesthetic medication to 117 dogs. The best results followed i/m injection of dilute solutions, $1\frac{1}{2}$ hours before the induction of anaesthesia.

See also absts. 3096 (tyrothricin); 3119 (aureomycin in bovine sterility); 3125 (salicylamide derivatives as fungicides); 3133 (nitrofurazone in avian coccidiosis); 3155-3136 (hemospiridin, tiargen and bigumal); 3137-3138 (theileriasis); 3141 (anaplasmosis); 3152 (equine encephalomyelitis); 3155 (atropine and adrenaline for provoking E.I.A.); 3157 ("otrhomin"); 3163 (terramycin and tetracycline in swine influenza); 3180 (action of aureomycin on bacteriophage); 3187-3195 (insecticides); 3202-3203, 3206, 3212-3213 and 3215-3216 (anthelmintics); 3226 (antibiotics in the prevention of bloat); 3228-3231 (antibiotics and growth in pigs).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

EVANS, C. LOVATT, SMITH, D. F. G. & WEIL-MALHERBE, H. (1956). The relation between sweating and the catechol content of the blood in the horse. — *J. Physiol.* **132**, 542-552. [Authors' summary slightly modified.] **3271**

The plasma of the horse at rest contains, on the averages about 1.7 μ g./litre adrenaline and 5.1 μ g./l. noradrenaline. In exercise causing free sweating there is a rise in blood adrenaline of about 78% and in noradrenaline of about 56%. Atropine, 0.06 mg./kg., lowers the concentration of both catechols at rest, but does not prevent the rise on exercise, and does not check exercise sweating. I/v. inj. of adrenaline or of noradrenaline (1-7 μ g./kg.) causes such increases in catechol content of the blood as to suggest rapid dispersal and utilization of the injected catechol. The level of both catechols was raised by the injection of either.

The blood sugar was not raised on exercise, though it was increased at rest by amounts of adrenaline which caused sweating (1 μ g./kg.). Morphine did not cause sweating when given in the small doses of 0.25-1 mg./kg.; with the largest dose there was a rise, but with the smaller doses a fall in blood adrenaline. Carbachol, 0.004 mg./kg. caused free sweating (prevented by atropine), and in two cases out of three a rise in blood adrenaline.

The noradrenaline concentrations in the blood generally vary with the adrenaline content, but are probably not directly correlated with sweating. The adrenaline concentrations

A dose of 0.5 mg. per lb. body wt. produced satisfactory pre-operative sedation, but with inadequate reduction of bronchial and salivary secretions.

EDDS, G. T. & TRACE, J. C. (1956). A new disinfectant—chlorhexidine or bis-p-chlorophenylidiguanidohexane (Nolvasan). — *Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 69-77. **3270**

In vitro tests revealed that chlorhexidine, also known as "hibitane," had a greater vibriocidal effect than streptomycin and was more active against *Trichomonas foetus* than acriflavine and tyrothricin. It was superior to a hypochlorite and a quaternary ammonium compound in the disinfection of teat cups.—M.G.G.

are probably directly correlated with sweating, and support the view that the sweat glands of the horse are humorally controlled.

BRODY, S., DALE, H. E. & STEWART, R. E. (1955). Environmental physiology and shelter engineering. With special reference to domestic animals. XXXVI. Interrelations between temperatures of rumen (at various depths), rectum, blood, and environmental air; and the effects of an antipyretic, feed and water consumption. — *Res. Bull. Mo. agric. Exp. Sta.* No. 593. pp. 20. **3272**

Data are presented on rectal, rumen and blood temp. in 2 Jersey cows during diurnal temp. cycles of 10° to 40°, 40° to 70°, 70° to 100° and 60° to 110° F. The temp. of the upper part of the rumen was on the average about 2° F. higher than the temp. of the lower part and of the rectum. The rumen temp. was sharply reduced by the administration of 14 lb. of water at 62°F., and normal temp. was not regained until 1-2 hours later. Feeding 4 lb. of hay to a fasting cow increased the rumen temp. by about 3°F. within 25 min.; the rectal temp. remained stable. I/v injection of 10.2 g. of antipyrine was followed by a decline in rectal and rumen temp., shivering, and then by a rise, first in rectal temp., then in rumen temp. It is considered that there is anaerobic production of heat in the rumen which can be measured by the difference between oxidative heat production and total heat dissipation.—M.G.G.

I. YECK, R. G. (1955). **Environmental physiology and shelter engineering. With special reference to domestic animals. XXXV. Heat and moisture removed by a dairy stable ventilation system during diurnal temperature rhythms.**—*Res. Bull. Mo. agric. Exp. Sta.* No. 595. pp. 28. [Abst. from author's summary.] 3273

II. YECK, R. G. & KIBLER, H. H. (1956). **Environmental physiology and shelter engineering. With special reference to domestic animals. XXXVII. Moisture vaporization by Jersey and Holstein cows during diurnal temperature cycles as measured with a hygrometric tent.**—*Ibid.* No. 600. pp. 19. [Abst. from authors' summary.] 3274

I. Ventilation requirements were determined with variable stable temperatures such as encountered during diurnal temp. cycles of 10° to 40°, 40° to 70°, 70° to 100° and 50° or 60° to 110° F. The average temp. of the diurnal cycle was satisfactory for use with previous constant temp. ventilation exchange data in order to predict most of the daily heat and moisture dissipation rates. The diurnal values were generally above the constant temp. values. Only during the 50° to 110° F. cycle did the rate of moisture dissipation differ notably from that of previous data. The differences between the rates of heat dissipation for the diurnal and constant temp. tests were greatest for the 10° to 40° F. cycle. However, instrument errors may have produced this result.

Air-conditioning requirements changed from one 2-hour period to the next. Moisture dissipation rates changed most within the high temp. cycles and least within the low temp. cycles. The moisture load increased by about 35% over the daily average moisture dissipation rate during the two-hour period after the 100° F. period. This means that extra ventilation or dehumidifying equipment is necessary at high temperatures.

Structural heat storage was of major importance in determining ventilation requirements in stables with varying temperatures. It made the calculation of hourly heat dissipation impracticable.

II. A new method was described for measuring the water vaporized by cows. Calibration tests with measured quantities of vapour and comparisons with other measurements proved the technique to be satisfactory. It was shown that cows rapidly adjusted their rate of vaporization to temp. changes usually within less than 2 hours. The importance of evaporative cooling was shown by the fact that

at temperatures near 100°F., nearly all of a cow's heat production was dissipated by vaporization. Even at 75°F. over 40% of the heat was dissipated in this way. The ratio (evaporative heat loss to metabolic heat production) at any given temp. within a diurnal cycle was found to be similar to that previously measured during prolonged exposures of a week or more at the same temp. This indicates a nearly instantaneous adjustment to temp. changes. There were no appreciable differences between Holstein and Jersey ratios of heat dissipation to heat production.

I. DUMONT, B. -L. (1955). **La mesure de l'eau totale de l'organisme chez les porcs par la méthode à l'antipyrine. [Estimation of total body water of pigs using antipyrin (phenazone).]**—*Ann. Inst. nat. Rech. agron., Paris.* Ser. D. 4, 305-313. 3275

II. DUMONT, B. -L. (1955). **L'utilisation de l'antipyrine pour la mesure *in vivo* de l'eau totale du corps chez les ovins. [Utilization of antipyrin (phenazone) for the *in vivo* estimation of total body water in sheep.]**—*Ibid.* 315-319. 3276

I. In view of its rapid elimination from the body and its uneven distribution in the tissues of the pig, phenazone is not considered a reliable indicator. For accurate determinations other indicators, such as tritium oxide, are recommended.

II. The estimation of the total body water of sheep is based on the distribution of phenazone in the sheep and its rate of elimination. The latter is 54% during the 2nd and 3rd hours after injection at a dose of 4 g./100 kg. live weight. Blood samples (preferably 4 or 5) are best taken between 50 min. and 3 hours after injection. The accuracy of the method is discussed.—T.E.G.R.

SAUERWEIN, H. (1954). **Über die Anlage der Karunkeln beim Rinderfötus. [Development of the caruncles in the bovine foetus.]**—*Inaug. Diss., Munich.* pp. 46. 3277

The formation of caruncles in the uterus of the bovine foetus commenced during the 4th month of pregnancy. Uterine glands were not formed during the intra-uterine life of the foetus.—R.M.

LOTMAR, R. (1956). **Nachweis von radioaktiv markiertem Schwefel (S³⁵) im Kaninchenhaar und seine Beziehung zu gewissen Problemen des Haarwechsels. [Demonstration of radioactive sulphur in rabbit hair and its relation to certain problems of change of coat.]**—*Zbl. VetMed.* 3, 281-286. [English,

French and Spanish summaries.] 3278

I/v injection into rabbits every 2-4 weeks of 6 mg./kg. body wt. of radioactive sodium sulphate soln. produced radioactivity of 200-400 counts per min. in growing hair, compared with 0-50 counts per min. in old hair.—M.G.G.

ZWEMER, R. L., MARTORANO, J. J. & TRUSCOE, R. (1956). Combined action of potassium and histamine on mice and guinea pigs.—*Amer. J. Physiol.* 184, 479-485. 3279

To determine the effect of the simultaneous administration of potassium with histamine, a variety of combinations of both substances were tested in about 1,000 mice and 500 g. pigs. A marked increase in mortality rates followed the i/p injection of a combination of the substances when compared with the lethal curves for each of the two substances given separately. Glutathione was found to protect against the combination, but an antihistaminic which protected g. pigs against histamine did not protect them, or mice, against the histamine-potassium combination.—J. A. NICHOLSON.

EAYRS, J. T. & BADDELEY, R. M. (1956). Neural pathways in lactation.—*J. Anat., Lond.* 90, 161-171. 3280

Experiments with lactating rats from which certain of the nipples had been removed showed that lactation ceases following hemisection of the cord when the only nipples available for suckling are on the same side as the lesion. It is concluded that impulses from the nipples enter the spinal cord by the dorsal roots and ascend in the lateral funiculus of the same side to reach the diencephalon.—J. A. NICHOLSON.

DUNCOMBE, W. G. & GLASCOCK, R. F. (1956).

Studies on the metabolism of mammary tissue *in vitro*. I. Oxidation of acetate and glucose by slices of lactating rat mammary gland. II. Oxidation of acetate and glucose by slices of lactating sheep mammary gland.—*Biochem. J.* 63, 326-332 & 332-336. 3281

Studies on mammary slices from the lactating rat and sheep show that the rate of acetate oxidation is several times as fast in sheep as in rat mammary tissue and that sheep tissue oxidizes considerably less glucose than does rat tissue; nevertheless glucose must serve as an important source of energy in the lactating mammary gland of the sheep.

—J. A. NICHOLSON.

GUYTON, A. C. & GREGANTI, F. P. (1956). A physiologic reference point for measuring circulatory pressures in the dog—particularly venous pressure.—*Amer. J. Physiol.* 185, 137-141. 3282

Anaesthetized dogs were rotated in various positions and the axes of the point in the chest at which right atrial pressure deviated the least were determined. This point was precise, regardless of position, individual, or the state of the circulation. Its location in the lower portion of the right ventricle is described.—JOHN SEAMER.

BOUW, J. (1956). Het bloedgroepenonderzoek bij runderen. [Blood groups in cattle.] — *Tijdschr. Diergeneesk.* 81, 307-321. [In Dutch. English, French and German summaries.] 3283

A discussion of blood groups in cattle, their determination and their practical applications in cattle breeding.—R.M.

ANCILL, R. J. (1956). The blood volume of the normal guinea-pig.—*J. Physiol.* 132, 469-475. 3284

Using azovan blue dye (T1824), the author estimated the blood volume of g. pigs as 7.2 ml./100 g. body wt.—R.M.

LENZ-DOROSCHKIN, I. (1955). Vergleichende Prothrombinzeitbestimmungen bei Haustieren. [The prothrombin time in domestic animals.] — *Inaug. Diss., Munich.* pp. 27. 3285

The factors involved in blood coagulation and the methods of determining the prothrombin time were described. In over 300 tests the following average values were ascertained: horse 17.7 sec., cow 27.8, sheep 14.8, goat 16.8, pig 15.8, dog 9.9 and cat 16.6. Quick's method as modified by Deutsch was used, with 0.5% instead of 1.5% calcium chloride solution.

—M.G.G.

RAPAPORT, E., KUIDA, H., HAYNES, F. W. & DEXTER, L. (1956). Pulmonary red cell and plasma volumes and pulmonary hematocrit in the normal dog.—*Amer. J. Physiol.* 185, 127-132. 3286

When pulmonary blood volumes and pulmonary haematocrits were measured by 3 different methods in anaesthetized dogs, significantly different results were obtained. The implications are discussed.—JOHN SEAMER.

HUGHES, R., MAY, A. J. & WIDDICOMBE, J. G. (1956). The output of lymphocytes from the lymphatic system of the rabbit.—*J. Physiol.* 132, 384-390. [Abst. from authors' summary.] 3287

Lymph was diverted from the right lymphatic duct to the thoracic from which it was collected by means of a cannula. The combined lymphocyte output of both ducts was 29.5×10^6 cells/kg./day. The mean output of the

right subclavian duct was 3.05×10^8 cells/kg./day and the lymph contained 3.5 g. protein/100 ml. It is concluded that the life of the rabbit lymphocyte in the bloodstream is 2 hours.

WHALER, B. C. & WIDDICOMBE, J. G. (1956).

The blood life-span of the lymphocyte in rabbits and rats.—*J. Physiol.* **132**, No. 2. pp. 41P-42P. of Proceedings. **3288**

The life-span of the circulating lymphocyte was calculated to be less than 2 hours in the rabbit and less than 1 hour in the rat.—M.G.G.

BERGER, H. -J. (1956). Quantitative Bestimmung des "direkten" und des "indirekten" Bilirubins im Serum der Haustiere. [Quantitative analysis of "direct" and "indirect" bilirubin in the serum of domestic animals.]—*Zbl. VetMed.* **3**, 273-280. [English, French and Spanish summaries. English summary modified.] **3289**

"Direct" and "indirect" bilirubin can be demonstrated in the serum of normal horses, foals, cattle, calves, sheep, goats, pigs and dogs, and the bilirubin index is always 1, except in the calf where it lies between 0.5 and 7. The bilirubin picture varies with species and age. Withholding food for 1-2 days causes a rise in the bilirubin in the blood.

BALMAIN, J. H., BIGGERS, J. D. & CLARINGBOLD, P. J. (1956). Glycogen, wet weight and dry weight changes in the vagina of the mouse. — *Aust. J. biol. Sci.* **9**, 147-158. [Authors' summary modified.] **3290**

The subcutaneous or intravaginal administration of oestrone to ovariectomized mice causes an increase in the dry weight of the vagina with a maximum at full keratinization. The water content of the tissue is increased in the pre-keratinization phase, and reduced in the keratinization phase. The true glycogen content of the vagina does not increase until keratinization commences.

The dry wt., wet wt., and total true glycogen content of the vagina in intact mice in the various stages of the oestrous cycle were compared with those obtained in ovariectomized mice. Studies were also made on the dry wt., wet wt., and total glycogen content of the uterus of intact mice. The pattern of changes seen in this organ was quite different from that in the vagina. The significance of these findings was discussed in relation to the mode of action of oestrogens and the histochemical aspects of the vaginal response to oestrogens.

HEBEL, W. (1955). Die Anatomie und Histologie der Epithelkörperchen des Rindes und ihre Beziehungen zum Kalziumspiegel im

Blute. [Anatomy and histology of parathyroid glands and their relation to the calcium level in the blood of cattle.]—*Inaug. Diss., Munich.* pp. 57. **3291**

Investigations were carried out on 100 cattle. The anatomy and histology of the parathyroid glands was described. Observations were made on their weight, colour, follicles and oxyphile cells. The weight of the glands is dependent on the calcium level in the blood. As a rule, small glands are associated with a high calcium level and *vice versa*.—M.G.G.

BHATNAGAR, D. S., MUKHERJEE, D. P. & BHATTACHARYA, P. (1955). Seasonal changes in the histology of the thyroid and the testis of buffalo. — *Indian. J. vet. Sci.* **25**, 293-300. **3292**

A note recording measurements of diameter of thyroid lobules, height of thyroid epithelium, and diameter of testicular lobules of 32 buffalo bulls slaughtered in different seasons in northern India. All these measurements were at their lowest in autumn (August-October), whilst the first was highest in summer (May-July) and the other two in spring (February-April).

—R. N. MOHAN.

MENKIN, V. (1956). Biology of inflammation. Chemical mediators and cellular injury.—*Science.* **123**, 527-534. **3293**

The pattern of the inflammatory reaction primarily results from the liberation by injured cells of a number of chemical substances which favour localization and the ultimate disposal of the irritant. The substances so far identified in inflammatory exudates are leucotaxine, a polypeptide which induces increased capillary permeability and the migration of polymorphonuclear leucocytes to the site of injury; exudin which also increases capillary permeability; necrosin which causes tissue damage and is present in the euglobulin fraction of acid exudates; and pyrexin, a fever-inducing factor. Two leucocytosis-promoting factors and a leucopenic factor are also associated with the euglobulin fraction of acid exudates, and a fourth substance, leucopenin is present in alkaline exudates. The interaction of the four last-named factors is responsible for determining the number of circulating leucocytes.

—J. A. NICHOLSON.

SALERNO, G. (1956). Ricerche sperimentali sulla riparazione delle cartilagini articolari. [The healing process in articular cartilage.]—*Veterinaria, Milan.* **5**, 10-21. [English, French and German summaries.] **3294**

In a series of experiments on 9 dogs a piece

of articular cartilage was stripped off from the head of the femur. Perfect healing is claimed in all except one case complicated by sepsis. Functional activity was restored before the healing process was complete. The scar con-

sisted of chondroid tissue which developed into fibrous cartilage and included areas of hyaline cartilage. The superficial layer of the diarthroidal cartilage also contributed to some extent, to the healing process.—T.E.G.R.

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

TAMMEMAGI, L. (1955). **Studies on serological differentiation of heated animal proteins.**—*Qd J. agric. Sci.* 12, 69-79. [Author's summary modified.] 3295

The technique of preparing antisera against heat-alkali-treated serum-antigens is described together with the elimination of cross-reacting "heat"-antibodies from such antisera. The prepared antisera had a rather low potency against normal sera but a high sensitivity against serum-antigens heated from 70° to 100°C. The absorbed (specific) antisera, however, were less satisfactory for differentiation of NaOH-extracted "insoluble" (boiled and powdered) serum-proteins than the unabsorbed (non-specific) antisera, and both failed to give precipitin reactions with cooked meat-proteins.

TRUM, B. F. (1956). **Atomic fallout, its effect on animals and food.**—*Proc. 59th Ann. Meet. U.S. live Stk sanit. Ass.* 1955. 23-29. 3296

Deposit from atomic explosions has not endangered the immediate health of livestock, but further research is necessary to determine low level chronic effects. Meat from animals exposed to lethal doses of total body gamma radiation is not necessarily unfit for human consumption. The exposure of food to radioactive deposits is not deleterious. Non-perishable foods with more than the maximum permissible level of radioactivity may be stored until radioactivity has sufficiently decreased.—M.G.G.

BRIDGES, R. G. (1956). **The fate of labelled insecticide residues in food products. V. The nature and significance of ethylene dibromide residues in fumigated wheat.**—*J. Sci. Fd Agric.* 7, 305-313. 3297

Fumigated wheat, which had been aired for 12 days, still contained an appreciable amount of ethylene dibromide, but on milling and airing for a further 48 hours, all residual dibromide was extracted. About one third to half of residual dibromide decomposed to ethylene glycol on heating for half an hour at 180° C. and the remainder volatilized. The amount of chemical reaction between dibromide and wheat was small at room temperature.—M.G.G.

LUTYŃSKI, W. (1956). **Wypadki przy pracy i choroby zawodowe służby weterynaryjnej Ministerstwa Rolnictwa w r. 1954. [Accidents and occupational diseases in veterinary personnel of the Polish Ministry of Agriculture, during 1954.]**—*Méd. vét., Varsovie.* 12, 301-305. [In Polish.] 3298

In 1954, out of 4,880 people employed by the Polish State Veterinary Service (including professional and technical personnel) 546 were involved in 611 occupational diseases and accidents. Diseases (70%) were more frequent than accidents (30%). The highest number of diseases was found among the personnel of veterinary clinics (13.3%) and among general practitioners (10.4%), the lowest among the veterinary and meat inspectors (5.2%). Swine erysipelas with 196 cases, and brucellosis with 140, caused the highest number of disease casualties; 40% of the loss of working days was due to brucellosis. In the accidents group, apart from various types of bruises and cuts, fractures of bones and damaged joints were most frequent. There was one fatal accident and through one case of anthrax 60 working days were lost.

—M. GITTER.

I. TOMLINSON, A. R., MARSHALL, C. E. & GOODING, C. D. (1956). **The new approach to rabbit poisoning. "1080" and improved methods.**—*J. Dep. Agric. W. Aust.* 5, 5-15. 3299

II. TOMLINSON, A. R. & LEIGHTON, J. W. (1956). **Co-ordinated rabbit control (using "1080"). Plans for 1956.**—*Ibid.* 17-19. 3300

I. Sodium fluoroacetate ("1080") has been found to be superior to any other poison for rabbit control. Practical instructions for its use are given.

II. This article outlines a plan for large-scale rabbit poisoning in Western Australia, using sodium fluoroacetate ("1080").

—R. I. SOMMERVILLE.

SKALLER, F. (1955). **The C.S.I.R.O. Poultry Research Centre.**—*Tech. Pap. Div. Anim. Hlth. Prod., C.S.I.R.O., Aust.* No. 1. pp. 19. [Author's summary slightly modified.] 3301

This account of the Poultry Research Centre of the Australian Council for Scientific and Industrial Research, at Werribee, Victoria, includes a general description of the Centre and its facilities and of the programme of work in which it is engaged. The Centre was established for the investigation of a series of animal breed-

ing systems and related genetical problems, the major project being a study of breeding systems based on different types of mass and genotypic selection and different systems of mating. The experimental flocks, systems of management, and methods used in the investigations are described.

See also absts. 3099 (human abortion, possibly caused by *S. abortus-ovis*); 3115 (leptospirosis in piggery workers); 3124 (feline ring-worm); 3171 (Newcastle disease in man); 3199 (cysticercus).

LIVESTOCK HYGIENE

ABELL, T. & HARRIS, D. B. (1956). Circular farrowing pen saves newborn pigs. — *Qd agric. J.* 82, 31-37. 3302

Detailed plans are given for the construction of a circular pig pen. Farrowing losses in this pen were found to be less than in the orthodox rectangular type.—R. I. SOMMERVILLE.

GRASHUIS, J. (1956). Straling bij de opfok van het jonge vee en het voorkomen van stress-verschijnselen. [Ultra-violet irradiation in the rearing of young animals; its use in preventing the occurrence of the stress syndrome.]—*Tijdschr. Diergeneesk.* 81, 15-23. [In Dutch. English, French and German summaries.] 3303

G. recommended ultra-violet irradiation to

prevent deaths through "chilling" of new-born piglets born in winter.—R.M.

HARRY, E. G. (1956). The application of aerosols to atmospheric and surface disinfection in the poultry industry. II. Atmospheric disinfection and its value as a means of controlling cross infection.—*Vet. Rec.* 68, 334-339. 3304

A review article in which H. discussed methods of producing germicidal aerosols, their mode of action and effective concentration in the atmosphere, effects of dust and humidity, and determination of the results of air disinfection. It was concluded that the value of aerosols is dubious in environments where contact is likely to be the principal mode of infection.—M.G.G.

See also abst. 3188 (fly control in cowsheds).

REPRODUCTION AND REPRODUCTIVE DISORDERS

HILL, H. J., SCOTT, F. S., HOMAN, N. & GASSNER, F. X. (1956). Electroejaculation in the bull.—*J. Amer. vet. med. Ass.* 128, 375-380. 3305

Ejaculates were collected from 690 beef bulls up to 2½ years old, using a single rectal electrode, developed and described by Marden, [*V.B.* 24, 3912]. No special preparation of the site was found necessary. The semen obtained was generally, and with regard to fertilizing capacity, comparable with 99 control ejaculates collected by artificial vagina from 14 dairy bulls, but half the samples from bulls 8-11 months old were below standard. Collection by the artificial vagina is considered preferable, as more consistent samples are obtained. The possible use of the electrode as a surgical aid is discussed.

—F. L. M. DAWSON.

EDGAR, D. G., INKSTER, I. J. & MACDIARMID, H. J. (1956). An improved method for the collection and evaluation of ram semen. — *N.Z. vet. J.* 4, 20-24. [Authors' summary modified.] 3306

A rectal bipolar electro-ejaculatory apparatus was described which permits rapid and

humane collection of semen from rams. The quality of individual drops of semen was assessed both microscopically and with the naked eye. Bacteriological examination of semen smears, together with palpation of testes and epididymes, greatly increased the efficiency of the diagnosis of brucellosis in rams.

KUSHWAHA, N. S., MUKHERJEE, D. P. & BHATTACHARYA, P. (1955). Seasonal variations in reaction time and semen qualities of buffalo-bulls.—*Indian J. vet. Sci.* 25, 317-328. 3307

Observations on 6 buffalo bulls during 2 consecutive years in northern India revealed highly significant seasonal variations in reaction time and semen characteristics. The reaction time was lowest in autumn; concentration of spermatozoa lowest in winter; total spermatozoa highest in summer; initial motility lowest in summer; and abnormal spermatozoa least in spring.—R. N. MOHAN.

ROBINSON, T. J. (1956). The artificial insemination of the Merino sheep following the synchronization of oestrus and ovulation

by progesterone injected alone and with pregnant mare serum gonadotrophin (PMS).

—*Aust. J. agric. Res.* 7, 194-210. [Author's summary modified.] 3308

A flock of 373 Merino ewes experiencing regular oestrous cycles were drafted into 3 groups of 149, 112 and 112. The first group was a control. Ewes in the other two groups received a dose of 10 mg. of progesterone daily for 16 days. Ewes in one of these groups also received 500 i.u. of pregnant mare serum gonadotrophin (PMS) on the day after the final progesterone injection. Commencement of injections was staggered so that approx. equal numbers of ewes in each group were coming into oestrus each day over a period of 6 successive days. In the group receiving progesterone alone 104 ewes, and in the progesterone—PMS group 107 ewes, were "teased" and inseminated within 4 days of the final injection of progesterone. Injection of PMS significantly advanced and improved the precision of the onset of oestrus and presumably of ovulation. Ewes inseminated, ewes lambing and lambs born were: untreated group 104, 58, 74; progesterone treated 104, 53, 64; progesterone—PMS 107, 61, 85. There were no significant differences between groups in the proportion of ewes which lambed, or in the twinning rate. Ewes in oestrus and inseminated 72 hours after the final injection of progesterone had a significantly higher lambing rate than ewes inseminated a day later.

SZUMOWSKI, P. & STOEGER, M. (1955). Sur les protéines du plasma séminal du cheval. [Proteins of the seminal plasma of horses.]—*Ann. Inst. nat. Rech. agron., Paris. Ser. D.* 4, 165-171. 3309

Albumins and globulins similar to those found in serum were demonstrated in the seminal plasma of the horse by paper electrophoresis which, it is considered, could also be used for the physiological evaluation of semen and for the detection of functional disturbances in the genital system. Albumin fractions in a concentration higher than 10% would seem to indicate abnormal semen in the horse. A knowledge of the values of the different protein fractions would be useful for the preparation of diluents for semen from horses and other species.

—T.E.G.R.

POMRIASKINSKY-KOBOZIEFF, N., VERETENNIKOFF, S., LAGNEAU, F. & KAHN, J. (1955). Diagnostic radiologique de la gestation chez la chienne. [Radiography in pregnancy diagnosis in the bitch.]—*Rec. Méd. vét.* 131, 743-754. 3310

A positive diagnosis can be made towards the middle of the 5th week. The animal is prepared by keeping on a liquid diet for 24 hours, administering a mild purgative and emptying the urinary bladder before radiography. Lateral decubitus, especially for early diagnosis, is recommended. Radiography is also useful for the differentiation of pregnancy from pyometra and, at the end of pregnancy, for the assessment of the number, size and position of the foetuses.

—T.E.G.R.

I. HARKNESS, M. L. R. & HARKNESS, R. D. (1956). Changes in the physical properties and in the collagen and hexosamine contents of the foetal membranes during pregnancy in the rat.—*J. Physiol.* 132, 482-491. 3311

II. HARKNESS, M. L. R. & HARKNESS, R. D. (1956). The distribution of the growth of collagen in the uterus of the pregnant rat.—*Ibid.* 492-501. 3312

III. HARKNESS, R. D. & MORALEE, B. E. (1956). The time-course and route of loss of collagen from the rat's uterus during post-partum involution.—*Ibid.* 502-508. [Authors' summaries modified.] 3313

I. Investigation of the physical strength of the foetal membranes revealed a rise from the 15th day to a maximum about the 18th day, followed by a steep fall to low values at the end of pregnancy. Over the same period of pregnancy there was an approximately linear increase in the total collagen content of the membranes. Investigation of the surface area of the membranes revealed relatively small changes in collagen per unit area. These were not large enough to account for changes in strength, and it was concluded that the weakening represents a relaxation of the structural material analogous to that which occurs in the cervix and symphysis pubis in pregnancy. The weakening of the membranes was accompanied by an increase in material of low protein content, and a drop in collagen conc. per unit of wet wt. There was a general but not exact parallelism between the strength of the membranes and the ratio of collagen to hexosamine.

II. Growth of collagen and non-collagenous protein at the placental sites and rest of the uterine horn during pregnancy was investigated. The greater part of the growth was found to be in the non-placental part of the horn which is the distended part, a finding which is compatible with the hypothesis that mechanical distension plays an important part in controlling collagen formation in the uterus in pregnancy. Further support for this hypothesis was obtained from the fact that no collagen formation took

place in the empty horn of a pregnant uterus in the second half of pregnancy. Changes in the area of the wall of the uterus were investigated, and it was found that collagen formation was roughly proportional to the change in linear dimensions of the wall in the direction of the stretch, *i.e.*, in the plane of the wall.

III. Loss of collagen from the uterus commenced, in the horns, 12–24 hours after parturition and in the cervical region, after 24–48 hours. It proceeded rapidly for about 2 days and then slowed down.

MILLER, W. R., TURNER, C. W., FUKUSHIMA, D. K. & SALAMON, I. I. (1956). **The identification of C₁₉ steroids in bovine feces.** — *J. biol. Chem.* **220**, 221–225. [Authors' summary modified.] **3314**

After administration of progesterone to a pregnant cow, androstene-3, 17-dione, etiocholan-3, 17-dione, and Δ^4 -androstene-3, 17-dione were identified in the faeces by paper and column partition chromatography and infra-red absorption. $\Delta^1,^4$ -Androstadiene-3, 17-dione was isolated in crystalline form and identified by melting point, mixed melting point, and infra-red absorption. These compounds are known steroids but are the first to be identified in faeces, and this is the first report of the isolation of $\Delta^1,^4$ -androstadiene-3, 17-dione from natural sources.

TREMAN, D. (1956). **Glomerular changes induced by stilboestrol.**—*Lancet*, **271**, 22–23. **3315**

Glomerular changes in 28 g. pigs following long-term treatment with stilboestrol were characterized by proliferation of cells and the formation of laminated extracellular material evenly distributed in the intercapillary spaces of the glomerular tuft. In any one case most of the glomeruli are affected to the same degree. Similar changes have been seen in men treated with stilboestrol, in the glomeruli of women dying during pregnancy, and in a pregnant g. pig. They were not found in non-pregnant female g. pigs. There is some evidence that the proliferating cells in the glomeruli are derived from intercapillary cells rather than endothelium. It is suggested that glomerular changes from other conditions may be due to intercapillary cell proliferation.—W. E. PARISH.

I. LAING, J. A. (1956). **Standards of fertility in farm animals and their relationship to inherited factors and animal husbandry practices.** — *Advanc. Sci., Lond.* **12**, 505–508. **3316**

II. HAMMOND, J. (1956). **Factors enhancing fertility.**—*Ibid.* 508–510. **3317**

III. HOLT, A. F. (1956). **Factors decreasing fertility levels.**—*Ibid.* 510–514. **3318**

I. The normal standards of fertility are an annual percentage of offspring of 100–200 for sheep and 85–95 for cattle. The improvement that can be obtained by selective breeding appears to be relatively small, whereas improved methods of husbandry, such as vaccination against enzootic virus abortion in sheep, should raise the standards considerably.

II. Hammond discussed the use of artificial insemination, hormone treatment and transplantation of fertilized ova for increasing the fertility of domestic animals.

III. Holt discussed the effects on fertility of temperature, length of daylight, rainfall, age, phosphorus deficiency and frequency of service, and pointed out the need for further research on the causes of embryonic mortality.

—M.G.G.

PAYNE, J. M. (1956). **The degenerative changes in the adult mouse testis returned to the abdominal cavity.** — *J. Path. Bact.* **71**, 117–123. **3319**

Degenerative changes were observed in mouse testis experimentally returned to the abdominal cavity, the earliest being degeneration of maturing spermatozoa followed by changes in the spermatids and spermatocytes. Pre-spermatocytes and spermatogonia remained unchanged. Atrophy of the testis was complete in 12 to 15 days and later a large number of mucus-secreting cells appeared in the epithelium of the tail of the epididymis.—J. A. NICHOLSON.

SHAH, M. K. (1956). **Reciprocal egg transplantations to study the embryo-uterine relationship in heat-induced failure of pregnancy in rabbits.** — *Nature, Lond.* **177**, 1134–1135. **3320**

By transferring the ova from heat-treated rabbits to rabbits kept at a normal temp., and *vice versa*, it was demonstrated that heat acts adversely on the maternal tissues and not on the embryos themselves.—M.G.G.

RILEY, J. W., MELVILLE, E. L. & BARKER, J. S. F. (1955). **Foetal maldevelopment in a litter of Large White pigs.**—*Qd J. agric. Sci.* **12**, 61–68. [Authors' summary slightly modified.] **3321**

Congenital deformities in a litter of Large White piglets, characterized by "kinky tail," cleft palate, hare lip, split ears, deformed limbs, supernumerary digits, and urogenital defects, are described and illustrated. Breeding work to

determine the cause of the deformities was not done, but it is suggested that they have a complex genetic basis that may involve a threshold during development.

FISCHER, H. (1956). Angeborene Zehenverkrümmung, ein Erbfehler beim Haushuhn. [**Inheritance of congenital crooked toes in**

fowls.] — *Arch. Geflügelk.* 20, 118-127. [English summary.] **3322**

Congenital crooked toes is a frequent malformation of both males and females in the Kedu and Australorp fowl of Indonesia, and it may affect one or both feet. It is hereditary and due to a simple recessive autosomal gene of incomplete and low penetrance.—W. G. SILLER.

See also absts. 3088 (congenital *M. johnei* infection in calves); 3099 (S. abortus-ovis, possible cause of human abortion); 3104-3113 (brucellosis); 3119 (aureomycin treatment of sterility in cattle); 3174 (abortion in cattle by a psittacosis-lymphogranuloma organism); 3239 (parturient paresis); 3245 (bovine abortion); 3277 (development of caruncles in the bovine foetus); 3337 (book, reproductive system in mammals); 3339 (transactions of conference on gestation).

ZOOTECHNY

MCDONALD, M. W. (1956). The effect of debeaking on the performance of the chicken. —*Aust. vet. J.* 32, 119-122. [Author's summary modified.] **3323**

The effect of debeaking of chickens on ability to grow and to feed was studied. In one experiment moderate debeaking of day-old chicks produced a 7.7% growth depression at 4 weeks of age which had disappeared by 7 weeks. There was no evidence of any impairment of ability to eat. The bulkiness of the mash had no effect on response to debeaking. In a further experiment, very severe debeaking of day-old chicks resulted in 55% mortality by 6 weeks of age, and a marked growth depression among survivors. Mild debeaking of day-old and 3-week old chicks was without effect on 6-week weight or mortality. It was concluded that moderate debeaking at any age produced no serious effect on performance.

MAWSON, W. F. (1956). Brahman cattle grow faster than British in the north.—*Qd agric.*

J. 82, 173-179. [Author's summary copied verbatim.] **3324**

In a trial conducted in North Queensland for 2½ years, Brahman crossbred steers grew at an average rate of over 12 oz. a day, as against 10½ oz. for the British breeds, and during the period gained 698 lb., compared with 607 lb. for the British breeds. The dressed carcasses of the Brahman crossbreds were heavier and of better quality.

THOMPSON, W. R., MELZACK, R. & SCOTT, T. H. (1956). "Whirling behavior" in dogs as related to early experience. — *Science.* 123, 939. **3325**

The authors compared the behaviour of Scottish Terrier dogs reared in isolation in small cages with that of related dogs reared normally. Eight out of 11 of those reared in isolation had fits characterized by tail-chasing behaviour. None of the dogs reared normally had these fits. —R.M.

TECHNIQUE AND APPARATUS

GREAVES, R. I. N. (1956). The preservation of bacteria. — *Canad. J. Microbiol.* 2, 365-371. **3326**

Centrifugal vacuum freezing with the use of a drying medium is suitable for the preservation of bacteria, but the rapid speed of evaporation necessary for success tends to cause contamination of the apparatus and cultures, and frothing may occur in many media if the speed is slowed down and the tubes plugged. G. described an apparatus designed for drying at a temp. below -30°C., which is highly effective with a drying medium containing no protein.

—R. V. L. WALKER.

URIEL, J. & GRABAR, P. (1956). Emploi de colorants dans l'analyse électrophorétique et immuno électrophorétique en milieu gélifié.

[Use of stains in electrophoretic and immuno-electrophoretic analysis in agar-gel.]—*Ann. Inst. Pasteur.* 90, 427-440. [English summary copied verbatim.] **3327**

Techniques are described which allow the characterization of proteins, lipids, phospholipids and glycoproteins after their dispersion by electrophoresis in agar-gels or after immuno-electrophoresis. Thin transparent films of dried agar are obtained in which the spots or the lines of specific precipitates are clearly visible and can be either measured by direct photometry or photographed. These methods allow double (electrophoretic mobility and chemical nature) or triple (electrophoretic mobility, immuno-chemical specificity and chemical nature) characterizations.

AFONSKI, S. I. (1956). [Use of isotopes in animal science.]—*Veterinariya, Moscow*. **33**, No. 4. pp. 9-14. [In Russian.] **3328**

A brief review of Russian work on the use of radioactive isotopes in the field of animal science.—R.M.

MISCELLANEOUS

MARKOWITZ, J. & ARCHIBALD, J. (1956). **Transbuccal hypophysectomy in the dog.**—*Canad. J. Biochem. Physiol.* **34**, 422-428. **3329**

The pituitary gland of the dog is surrounded by vascular tissue to form a circular sinus. A practical technique is described for the removal of the gland through the soft palate in a "bloodless" operation.—R. V. L. WALKER.

REPORTS

UNION OF SOUTH AFRICA. (1956). **Veterinary Services.** [ALEXANDER, R. A.] *Fmg S. Afr.* **31**, 106-119 & 136. **3330**

This is an annual report covering the period 1st July, 1954, to 1st June, 1955. ANTHRAX is sporadic; annual vaccination is carried out: BLACKLEG causes more losses but could be controlled if farmers availed themselves of the vaccine in good time. LAMB DYSENTERY, ENTEROTOXAEMIA and MALIGNANT OEDEMA ("Dikkop" in rams) occur and vaccines are available. There is a vaccine for BOTULISM (Lamsiekte) which was again troublesome; bone meal was in short supply. No avian strains of *Mycobacterium tuberculosis* were found when typing bacilli from pigs, and outbreaks in poultry were rare. The voluntary scheme for tuberculin testing and accrediting of herds was hampered by lack of staff. Only one outbreak of JOHNE'S DISEASE is recorded. Freeze-dried BRUCELOSIS vaccine is issued. VIBRIOSIS is the most serious breeding problem. Artificial insemination using tested bulls is a way to control it. Infected bulls are detected by the injection of their semen into pregnant g. pigs. The incidence of MASTITIS is increasing with intensive farming. There was more FOWL TYPHOID. Increased testing for PULLORUM DISEASE is reported. *Salmonella typhi-murium* was found in young chicks and in foals in a racing stud. *S. abortus-equi* was diagnosed in two studs. Two outbreaks of FOWL CHOLERA with deaths among turkeys and ducks are reported, but there were probably other cases in back-yard poultry. SENKOBO DISEASE (Streptothricosis) in cattle could not be correlated with humidity as in sheep.

NAGANA in Zululand is well under control. *Trypanosoma simiae* in pigs did not respond to the drugs used in cattle and horses. There were fewer cases of DOURINE. ANAPLASMOSIS is controlled by a single injection of vaccine giving a life immunity, but losses from this and REDWATER were high owing to heavy rains and

increased tick activity. A number of new outbreaks of GLOBIDIOSIS have been diagnosed and the life cycle of *Globidium besnoiti* determined. COCCIDIOSIS has been found to cause paralysis in adult poultry, is a common cause of loss in young birds, and occurred as an outbreak among dogs in Durban. Some cases of abortion due to TRICHOMONIASIS are recorded. A trichomonas of pigeons causing canker can now be controlled by aminonitrothiazole. "CORRIDOR DISEASE" is being studied; it occurs near the Hluhluwe game reserve in Natal and is transmitted from buffaloes, probably by ticks. EAST COAST FEVER is well under control. Ten fresh outbreaks occurred, but all in the same district.

FOOT AND MOUTH DISEASE appeared after an absence of four years and was controlled by limited slaughter and the extensive use of live virus to hasten spread. A satisfactory freeze-dried vaccine for BLUETONGUE is available, but farmers are slow to use it and the disease has caused heavy losses. RABIES is still a danger and work continues on the improvement of the Flury strain vaccine. Destruction of stray dogs and wild carnivores together with vaccination of dogs is the method of control. Freeze-dried vaccine prepared from the seven known strains of AFRICAN HORSESICKNESS virus is issued. A complement-fixation test is of value in detecting the virus; losses from the disease were not excessive. An apparently new virus, from an outbreak of abortion in sheep, was pathogenic also for other species, including cattle, pigs and human beings; it is being propagated in eggs and in unweaned mice. Three outbreaks of AFRICAN SWINE FEVER occurred: the virus was isolated from a dead wart-hog. Work on its propagation in embryonated eggs continued. Movement restrictions are imposed from infected areas. The histo-pathology of CANINE VIRUS HEPATITIS has been studied. An experimental vaccine for "LUMPY SKIN" DISEASE was not satisfactory. The disease was at its worst in the Transvaal. Only one outbreak of RIFT VALLEY

FEVER was confirmed. Supplies of freeze-dried vaccine are held for emergencies. Work on improving its keeping qualities is going on. The liquid FOWL POX vaccine has been replaced by a freeze-dried one. The disease is widespread. Freeze-dried Komarov strain NEWCASTLE DISEASE vaccine gave good results; work on an improved vaccine continues. There were seven outbreaks of the disease. CHRONIC RESPIRATORY DISEASE and ROUP have also caused trouble in poultry. INFECTIOUS EPIDIDYMITIS AND VAGINITIS is spreading particularly in African-owned cattle where communal breeding is practised. "THREE-DAY STIFF SICKNESS" was less severe. HEARTWATER is controlled by infected blood inoculations. "Banks" of it are kept frozen at the research and field centres.

Tsetse fly surveys continued in Zululand. BLOWFLY STRIKE is best prevented by "Diazinon." In mild strike the Mules operation is helpful. TICK PARALYSIS has been controlled by pasture improvement. Against INFECTIOUS ITCH (*Psorergates ovis*) the delta and epsilon isomers of B.H.C. were found to be active. SHEEP SCAB and MANGE did not increase.

In HELMINTHIASIS the French reports of the value of injecting carbon tetrachloride and tetrachlorethylene were not confirmed. Conical fluke (*amphistomes*) did not respond so well to tetrachlorethylene as before.

Research into MAST CELL TUMOURS of dogs goes on. LYMPHOID LEUCOSIS and fatty degeneration of the liver were common in fowls.

—R. G. MARES.

CYPRUS. (1956). **Annual Report of the Chief Veterinary Officer for 1955. (Annual Report of the Department of Agriculture for 1955, Supplementary Report X.)** [NEAVE, R. M. S.] pp. 21. [Mimeographed.] **3331**

The health of the livestock was generally satisfactory, but grazing was difficult owing to the late autumn rains. Despite this, the sheep population increased by 20,000.

Mechanization and the use of combines greatly reduced the quantity of barley straw, with the result that fewer cattle have been fattened.

The poultry industry has greatly expanded with a consequent increase of disease. PUL-LORUM DISEASE was imported from England with a batch of day-old chicks. Fortunately it was stamped out but it caused considerable loss. FOWL POX has again been serious and active measures are being taken for vaccination.

Several portable and permanent dipping baths have been installed and considerable progress has been made in encouraging the dipping

of sheep and goats.

Artificial insemination is not much used, but five Cyprus fat-tailed ewes were inseminated with East Friesian semen and three hybrid lambs were born. These have the characteristics of the Cyprus fat-tailed sheep, but without the fat tails.

Vaccination against ANTHRAX was compulsory for sheep and goats and no case of anthrax has occurred during the year. Other diseases dealt with are BLUETONGUE, PARASITIC GASTRO-ENTERITIS, "WARBLES" in goats, *Oestrus ovis* infestation in sheep, FOWL POX and NEWCASTLE DISEASE in poultry.

The Veterinary staff are called in to assist the Municipal Meat Inspectorate when required. The principal reason for condemnation of meat was hydatid cysts.

A report on the work of the laboratory is included, showing the large quantities of vaccines manufactured. The Diagnostic Service examined 8,511 specimens. Of these, P.M. examinations were made on 7,629, bacteriological examinations on 1,645, microscopic examinations on 1,547, worm egg counts on 1,173; while 245 were submitted to serological tests, 256 to analyses, 26 to biological tests, 17 to concentration tests and 116 to macroscopic examinations.—D. S. RABAGLIATI.

KENYA. (1956). **Interafrican Bureau of Epizootic Diseases, fourth Annual Report, 1955.** pp. 17+8. Hertford: Stephen Austin & Sons Ltd. **3332**

The Bureau came into operation on the 1st January, 1952, and the third annual report for 1954 included a summary of the work of three years, while the present report includes only 1955 and is brief.

The commission for Technical Co-operation in Africa south of the Sahara was established in 1950 (C.C.T.A.) and was the subject of an inter-governmental agreement signed in London in January 1954. It consists of the following Governments:—Belgium, Federation of Rhodesia and Nyasaland, France, Portugal, the Union of South Africa and the United Kingdom. Its object is to secure co-operation between territories south of the Sahara for which each member Government is responsible.

The outstanding event in the Bureau's activities in 1955 was the training course of laboratory techniques in rabies held at Muguga in the laboratories of the East African Veterinary Research Organisation.

A Quarterly summary of Animal Health Statistics is compiled from the Morbidity Reporting Procedure. The last quarterly information on the incidence of 28 diseases in 47

political areas south of the Sahara is tabulated in a concise form, according to a known legend and code number for each disease.

A list of publications is given in Appendix 1, and a second Appendix contains the constitution of the I.B.E.D. The Report is printed both in French and English.—D. S. RABAGLIATI.

COLONY OF FIJI. (1955). Department of Agriculture. Annual reports of Divisional and Specialist Officers, 1954. pp. 53. Suva: Govt. Press. Bulletin No. 29. 4s. [Report of Senior Veterinary Officer, OHMAN, A. F. S., pp. 20-32.] **3333**

The number of cattle slaughtered in registered abattoirs was 7,839, the highest for many years. Of these, 225 were totally and 1,322 partially condemned for TUBERCULOSIS. Tuberculin testing is being actively carried out and 13,352 (5,803 more than in 1953) were tested and showed 2.9% of reactors. In addition, 25 clinical cases were detected at stock inspection and destroyed by order. During the year, 1,177 calves were vaccinated against BRUCELLOSIS with Strain 19. Since the vaccine was introduced, "abortion storms" have disappeared. Interest in goat breeding is increasing and goat meat finds a ready market amongst the Indian community. A number of goats died from TETANUS, chiefly following castration. Arrangements are now in hand to vaccinate the whole of the goat stock with tetanus toxoid.

Owing to the presence of INFECTIOUS LARYNGO-TRACHEITIS in Australia the embargo remained on the importation of poultry (other than day-old chicks) from that country. There is great demand for day-old chicks.

The report contains 21 statistical tables illustrating the work of the Department.

—D. S. RABAGLIATI.

SOMALILAND PROTECTORATE. (1955). Department of Agricultural and Veterinary Services, Annual Report, 1955. pp. 36. [Mimeographed.] **3334**

The year was not satisfactory for stock owing to adverse conditions, especially a heavy

locust infestation. Many deaths took place from starvation. Amongst camels, TRYPANOSOMIASIS occurred to a lesser extent than in previous years, but deaths from ANTHRAX were numerous. Difficulties have been encountered in inducing camel owners to use anthrax vaccines while their herds were still clean.

Every effort was being made to vaccinate household dogs against RABIES. No cases were reported.

RINDERPEST, probably coming from Ethiopia, has been present among cattle. There was a great demand for vaccines which fell far short of requirements. It was hoped to solve the shortage and to begin free vaccination of all cattle against RINDERPEST, from the 1st January, 1956.

Skin disease was very prevalent in goats owing to the very dry conditions prevailing. MANGE and what is described as "PARASITIC ECZEMA" were said to be the main conditions found in goats. These readily responded to regular dipping: 219,917 sheep and 32,280 goats passed through the dipping tanks.

The export trade in livestock showed an increase during the year. A large number of cattle were exported to Jibuti *via* Zeilah for shipment to Egypt. Since August all these cattle have been vaccinated against RINDERPEST to avoid quarantine delays at the port of discharge.

—D. S. RABAGLIATI.

UNITED NATIONS. (1955). Report to the Government of India on manufacturing of biologics. pp. 13. Rome: Food and Agriculture Organization of the United Nations. FAO Report No. 369. **3335**

Activities were directed mainly towards the installation of laboratory equipment, instruction of laboratory staff and production of vaccines. Freeze-dried goat tissue vaccine for the control of rinderpest, and freeze-dried chick embryo vaccines against Newcastle disease and fowl pox were produced. Two types of haemorrhagic septicaemia vaccine (*viz.*, killed broth culture and killed agar-wash-culture suspension) were also prepared.—T.E.G.R.

BOOK REVIEWS

GENET, L. (1955). Cancer des bêtes, cancer des hommes. [Cancer in man and animals.] pp. 136. Paris: Vigot Frères. **3336**

This is not a text-book of comparative oncology, nor does it give a detailed statistical or pathological comparison of malignant tumours in man and domestic animals. The author, stressing particularly the occurrence of upper alimentary cancer in man, and of genital system cancer in woman, speculates at length on the

causes of cancer. He concludes that cancer is the final result of prolonged low-grade damaging action of agents of many kinds, which has the effect of producing the "agent of malignancy" in the body. There is a considerable discussion of what might be called the auxiliary treatment of cancer. Prevention of cancer is reckoned to rest chiefly on avoiding specific or non-specific damaging agents.

The notion that a consideration of cancer

in domestic animals as well as in man may throw light on the essential nature of cancer is probably well-founded, but much more detailed knowledge of animal tumours is needed before an analytic or synthetic approach is likely to lead to useful results.—E. COTCHIN.

OTTOW, B. (1955). *Biologische Anatomie der Genitalorgane und der Fortpflanzung der Säugetiere. [Biological anatomy of the genital organs and reproduction in mammals.]* pp. vii+201. Jena: Gustav Fischer. DM 27. **3337**

This book presents a general view of the morphology of the mammalian reproductive system, and variations in morphology are considered in relation to functional differences and not phylogenetic affinities. The first section (pp. 4-23) is an account of the embryology of the human genital organs with comparative references. The next (pp. 24-71) describes general structure and function of the components of the reproductive system. The salient morphological characteristics of the system within the various orders are given in pp. 72-153, and in the final section (pp. 154-185) the anatomical aspects of conception, pregnancy, and parturition in mammals are discussed. This last section, relating reproductive function to general biology as well as the structure of the reproductive organs is particularly interesting.

This is a well conceived attempt to relate the morphology of the sex organs to their task of reproducing the species. The major criticism of its contents is that phenomena such as egg-laying, marsupial suckling, and placentation, are dealt with in widely separate places and not considered as variations in the pattern of nutrition of the young. Although the list of references is comprehensive, the system of referencing is not entirely satisfactory, and also spelling mistakes in the references to English and French papers are numerous. Nevertheless, the book can be recommended to all interested in mammalian reproduction.—R. R. ASHDOWN.

EMSBO, P. (1955). *Subaortal stenose. Komparative studier over medfødt subvalvulaer aortastenose (venstresidig konusstenose) hos svin og menneske. [Comparative studies on congenital stenosis of the aorta in pigs and human beings.]* pp. 223. Copenhagen: Dansk Videnskabs Forlag. **3338**

The concept of this book written in Danish with an English summary is to draw attention to the incidence of cardiac stenosis and allied conditions in the pig, within the background of the extensive evidence presented of similar distur-

bances in man. To this end the literature has been reviewed and the author has endeavoured to classify the aetiology and nature of these conditions. Those interested in vascular irregularities should consult this work.

—C. W. OTTAWAY.

ANON. (1956). *Gestation. Transactions of the Second Conference, March 8, 9 and 10, 1955, Princeton, N. J.* [Sponsored by the Josiah Macy, Jr. Foundation.] [Edited by: VILLEE, C. A.] pp. 262. New York: Josiah Macy, Jr. Foundation. \$5.00. **3339**

This symposium on Gestation, like that of 1954 [*V.B.* 25, 3091], was concerned with placentology but in addition devoted nearly half its time to animal behaviour studies.

Two papers by J. D. Boyd and Elizabeth Ramsey, deal with the morphological relationships of the blood vessels of the maternal side of the placenta. Although representing an excellent integration of recent and past work they deal solely with the primate placenta. Two other papers describing new work on the circulation of the placenta have a wider appeal. Although they are separately concerned with the maternal blood flow through the placenta in man (C. S. Burwell) and the foetal blood flow through the placenta in sheep (S. R. M. Reynolds) the species differences are integrated well in discussion.

A paper by R. K. Enders describes a normal delay of some months between fertilization of ova and their subsequent implantation in the mink. A great deal of information is given, incidentally, on reproduction in this species.

The psychological aspects of gestation are represented by two papers concerned solely with the rat. P. C. Karli briefly described variations in aggression and maternal protective behaviour exhibited at parturition and lactation. C. P. Richter led a discussion which occupies nearly half the volume and which should be of considerable value to nutritionists. He described at different stages of gestation the self regulation of general body movement, of nest building, of energy balance, and the self-selection of dietary components, minerals—Na, K, Ca, PO_4 —protein, fat and carbohydrates. However in this section too much space is devoted to describing work published 15-25 years ago.

The volume is illustrated generously and with clarity. These symposia are arranged with each main speaker leading a discussion rather than reading a paper and the resulting informality of debate forms the most instructive part of the publication, as well as making for enjoyable reading.—R. J. FITZPATRICK.

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J. Seamer, *School of Veterinary Medicine, University of Cambridge*

3. RINDERPEST: CONTROL BY MODIFIED VIRUS VACCINE (Part 1).

J. G. Brotherston, *A.R.D.A., Moredun Institute, Edinburgh.*

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